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BRIEFS

NEW TRUCK ASSEMBLY LINE--A second assembly line with an annual output of 75,000 trucks will be put into service this year at the KamAZ Truck Plant in Naberezhnyye Chelny. [Text] [Bonn DIE WIRTSCHAFT DES OSTBLOCKS in German 14 Sep 79 p 6]

CSO: 1826

CONSTRUCTION, CONSTRUCTION MACHINERY AND BUILDING MATERIALS

EVALUATIONS TO BE BASED ON FINAL RESULTS

Tbilisi ZARYA VOSTOKA in Russian 21 Sep 79 p 2

[Article by D. Gugava, chief of organization and economics department of the Georgian SSR Gosstroy. Z. Retter, chief of the estimating and planning department of the construction organization of the Georgian branch of the "Giprolestrans"]

[Text] The decree by the Central Committee of the CPSU and the USSR Council of Ministers "On improving planning and strengthening the effect of the management mechanism on raising the efficiency of production and quality of work "stresses that evaluation of the economic activity of construction-installation organizations and their economic incentives will be made on the basis of the results of fulfilling the tasks on putting in operation production capacities and facilities, commercial construction products, increase the productivity of labor and profits. The implementation of this problem is related directly to assimilating the experience now accumulated by construction-installation organizations of Belorussia, Ukraine, Lithania, Uzbekistan and the RSFSR and using in practice the most valuable parts of the comprehensive economic experiment.

What is the essence of the transformations that made it possible for the Belorussian colleagues to improve considerably the management system in all links of construction?

We will begin with the fact that at the basis of the experiment there was a clear-cut orientation on a complete construction product, and the main evaluating indicator of contract organizations (and later -- of all customers) were the facilities fully completed and released for operation. The most important components of the change, without whose observance it simply would not be operable, were the inclusion in the contract work plans of only the facilities provided fully with planning-estimating documentation (not less than for the work volume of the planned year) and assigned construction sites; planned commercial construction products (in plans of the contractor and customer); provision of materials and equipment for the construction site as required and

determined by plans and estimates; and provision of continuous financing (credit) for the construction. The single source of income of a large construction organization in the process of the experiment was the profit from releasing completed facilities with its size determining the sums to be deducted for the material incentive fund.

What were the results of the experiment for the last several years? The improvement in the management mechanism in construction expressed itself in the centralization of management functions. All subdivisions of contractor organizations, participating in the experiment, billed and will now bill customers only for a fully completed facility and, if necessary, will utilize credit of the Stroybank widely. The schedule of releasing facilities is being maintained and the volume of incomplete construction is being reduced correspondingly. The low level cost accounting was strengthened and the number of collectives using the brigade contract method increased sharply. The efficiency of production increased noticeably and the yield of capital investments increased sharply.

The initiative of the Belorussian builders, supported by builders of other republics, it must be said, is already beyond the framework of an experiment. A full norm basis was created and extensive experience was accumulated which makes it possible to speak about the birth of a new efficient method for organizing capital construction. There is an urgent necessity to change to this method also by builders of our republic. And the sooner -- the better.

Today, in planning and evaluating the results of capital construction, the leading role in our republic is given to two indicators: putting in action production capacities and facilities and completing the total volume of construction-installation work. The volume of the sold products, along with indicators of putting capacities and facilities into action, and the obtained profit -- these are used to evaluate the results of the economic activity production of contractor construction-installation organizations.

The volume of sold products includes two kinds of indicators: volume of construction-installation work on facilities completed and released for operation and the volume of construction-installation work for completed work stages released to the customers. The latter is a completed product to the contractor organization, while to the customer it is still incomplete construction. What is significant here is that contractor organizations are interested in releasing intermediate stages. This is the result of the fact that the indicator of the complete product being sold covers more labor-intensive and relatively low paying work, while intermediate stages are frequently more expensive and less labor-intensive operations. This orientation leads, essentially, to an excessive increase in incomplete construction volumes in the republic. This also explains the pattern that for a number of years, the fulfillment of plan indicators of putting in operation fixed capital

lagged constantly behind the completion of the total volume of finished construction-installation work. We will consider the dynamic picture of recent years. In 1975, the total program of contractor work was fulfilled by 95 percent, while the plan for putting in operation fixed capital was implemented only by 77 percent; in 1976 -- 95 and 76 percent respectively; in 1977 -- 97 and 83 percent; in 1978 -- 100 and 86 percent; and in the first six months of this year -- 98 and 74 percent.

This disproportion in fulfilling the basic plan indicators of capital construction in the republic is due partly to the existing system of bonuses which determines the material incentive basically of workers in the lower links of contractor organizations in releasing facilities for operation, while the upper links -- we have in mind trusts, main administrations of ministries -- do not participate, as a rule, in the distribution of these bonuses. Yet, the fate of the construction project, the final result, depends to a great extent on the skillful organization of material-equipment supply to high priority facilities and efficient maneuvering of resources.

One of the serious reasons, frequently interfering with putting facilities in operation on time and completing construction fully, is the low level of contract discipline of suppliers of construction materials, structures and parts. Due to their laxity, construction work becomes irregular and instead of a priority planned for completion in the following year, it changes at times to a "transferred" category. Suppliers, however, who are guilty of disrupting the completion schedule remain unpunished and carry practically no material responsibility for nonfulfillment of contract obligations.

Great difficulties in construction are caused by untimely allottment of working capital to contractor organizations for incomplete construction and delay in payments for released stages of work or those facilities completed and released for operation. In either case, this is not the fault of the builders -- frequently contractor organizations find themselves in difficult situations expressly due to the low level of financing on the part of the customer.

Changing over to the method of the Belorussian builders promises large advantages, primarily, by virtue of the fact that it eliminates the above mentioned difficulties to a considerable extent. In this case, it is especially important that financial organs and all other participants in construction are mutually responsible.

In the republic, there exist all the possibilities, even today, to begin developing measures for changing over to the new method of organization of capital construction starting in 1981. For this purpose, plans for contracting work starting next year must be aimed at changing over at the beginning of the new five-year plan period to continuous two-year planning of putting in operation capacities and facilities. For this,

It is necessary to select construction facilities more carefully for the near future and this concerns primarily the customers.

For all the selected facilities, it is necessary, before the end of the year, to complete the preparation of preproject technical-economic substantiations, so that, in the first half of next year, planning-research work, in the volume necessary for construction work in the first two years of the 11th Five-Year Plan period, be fully prepared. So far, proper attention is still not being given to this very important construction stage. A check has shown that many customers up to the present time have not refined fully the project plans for the current year, which, in its turn, places planning institutes in an extremely difficult situation. The situation is still worse with project plans for next year; meanwhile the times for refining these plans have already passed.

Much preparatory work must be done also by construction-installation organizations: it is necessary to outline ways for centralizing management functions in construction, strengthen low level cost accounting and solve problems of centralizing deliveries of construction materials and products to the construction sites.

The Ministries of Construction and Rural Construction of the republic initiated an application on changing them over to the Belorussian method and, therefore, it is especially important now to accelerate the preparatory work started by other construction participants in the republic for adopting concrete measures to solve problems defined in the decree of the Central Committee of the CPSU and the USSR Council of Ministers on improving planning and strengthening the effect of the management mechanism on raising the efficiency of production and the quality of work.

2291
CSO: 1821

CONSTRUCTION QUALITY CONTROL

Minsk SOVETSKAYA BELORUSSIYA in Russian 15 Jun 79 p 2

[Article by F. Bobinskiy, engineer]

[Text] As in other industries of the national economy, in the Tenth Five-Year Plan period, the attitude toward questions of quality have changed radically in capital construction. The results are obvious. It is sufficient to compare today's housing to that built several years ago to be convinced of considerable changes for the best. Housing facades became more impressive, apartment layouts were improved, heat losses through windows and doors were reduced due to the use of elastic liners, the use of ceramic tiles and parquet blocks expanded and the appearance of carpentry products and built-in furniture improved.

However, it would be too hasty to conclude that the possibilities for improving quality were fully utilized. Positive changes occurring today in the quality of housing construction are most frequently the result of improving design solutions and structures, assimilating and using more widely new efficient materials. As far as the quality of construction-installation work itself, progress here is still not very noticeable.

The quality of an erected facility, naturally, is determined not only by the labor of the builders, but also by the quality of the design, equipment, products and materials. But this is a subject for a special discussion. Here one would like to dwell expressly on that which depends directly on the builders.

Let us take, for example, such a necessary quality of housing, as the resistance of exterior walls to the blowing-in of air or leakage of water. It is well known that even in Minsk, where builders have a fairly good reputation, about half of the large panel housings accepted for operation become objects of complaints for these reasons in the very first years of operation.

If the inhabitants were also intolerant to air penetration, the number of complaints would have been considerably greater. This was confirmed by investigations made by the Institute of Construction and Architecture

of the BSSR Gosstroy. Thus, in investigating one house built by the Minsk Production Association of Industrial House Building, tests for air penetration were passed by only 20 percent of the investigated junctions. In testing for water penetration on the inside, the majority of the wall panels showed wet spots. A check showed that where the joint sealing was done in accordance with norm requirements, the air penetrability not only did not exceed the norm, but was considerably lower. On the contrary, in all cases air penetrability was higher then the norm where sealing was not done in accordance with the regulation. Most frequently, joints are not filled fully with sealing mastic. In the tested places, there was either no mastic or it was applied only to one edge of the joint. Other violations were discovered, but they involved only the thoroughness and accuracy of the work.

The slovenly sealing of wall panel joints attest to the lack of operational quality control. If such control were available, the foreman would not permit covering the joint not protected properly by the mastic with a solution.

A great amount of work done by construction organizations on developing a quality control system must produce results and be efficient. One thinks that the main evil that must be eliminated is the formalism exhibited literally at each step. The quality of construction-installation work at a number of construction sites for many months day after day is appraised by one single evaluation -- "good." Even without inspecting the work done, it is possible to state that such appraisals are the result of formalism.

Yet, in closing orders such uniformity is not observed. Here appraisals are limited to some extent by the wage fund.

Formalism in the organization of quality control, as strange as it may seem, cling to life tenaciously due to the liberal and undemanding attitude of government receiving commissions. Thus, in spite of mass infringements in making joints, in 1977 and the first half of 1978, four out of five large panel apartment houses in Minsk were appraised by government commissions as "good." The Minsk gorispolkom, it administrations -- housing, capital construction and architectural-planning, should have been concerned that housings with "perforated" walls be closed to consumers or, in any case, that they obtain an objective appraisal. To please falsely understood local interests ("why are we worse than others") the gorispolkom approves acts without comments with obviously overstated appraisals.

At the same time, there are examples of a fairer approach and appraisal of construction quality. We have no basis for saying that the construction quality in Leningrad is worse. But in 1977, the Lengorispolkom was not afraid to appraise 93 percent of the adopted facilities as

"satisfactory." The prestige of the Leningrad builders did not suffer and the high exactions only stimulated the fight for a real increase in quality.

Exceeding the appraisals of facilities accepted for operation not only does moral harm, but also results in direct overpayment of bonuses.

At times, good appraisals are given to facilities not only with hidden, but with obvious defects, and with many unfinished items. For example, the drinking water pipeline of the Vileysko-Minskaya water system was accepted last year by the Mingorispolkom commission with a "good" appraisal when there was unfinished work to an amount of 350,000 rubles. Even if we were to assume that the work here was actually well done (it was found that it was not) even then a government commission and the gorispolkom, that approve a receiving act, had no basis to give a high appraisal to unfinished work. As a result, the water pipeline did not operate for many months, although construction regulations permit receiving production facilities only after they begin producing -- in this case pure water. The lack of principles assumes the ugliest form when facilities built by the Administration of Road-Bridge Construction and Public Welfare of the Mingorispolkom are released. The situation is that this administration plays simultaneously the role of a customer and contractor. L. S. Govor, chief engineer of the administration, is always appointed by the gorispolkom to be the chairman of the government commissions. Who will give himself a "two?" So it comes out that all facilities presented by customer L. S. Govor, built by contractor L. S. Govor, are accepted by the chairman of the government L. S. Govor not only with a satisfactory appraisal, but with good and even excellent appraisals. Thus, in the third quarter of 1978, the street connecting Vaneyev Street to Partizanskiy Avenue was accepted for operation with a good appraisal although, according to laboratory data, attached to the act by the commission, the asphalt-concrete used for covering the street did not meet the requirements of the government standard with respect to water saturation, swelling and the void factor. This same data, determined by a neutral laboratory, for asphalt-concrete covering of sidewalks was found to be simply catastrophic. Small architectural shapes on Leninskiy Avenue were appraised "excellent," although some parts of the granite facing were damaged or stolen. Many other things could be said about these facilities, but it seems that what has been said is sufficient to draw conclusions about the lack of principles. Moreover, L. S. Govor, to ease his problem, composes the government commission without representatives of the sanitary and fire department inspectors. Thus, there is almost nobody to resist the self-seeking tendencies in the commissions.

Bank establishments should correct intentional or unintentional errors in appraising facilities being released. That is the way it was done until recently. But in December 1978, I. F. Yermakov, deputy manager of the Belorussian Republic Office of the USSR Stroybank, ruled officially

that these actions are "exceeding authority" and are not to be done in the future. He stated that decisions of government commisions are firm and are not to be changed by anybody. Yet, in 1975, the USSR Stroybank was ordered to consider housing and cultural-personal service facilities, accepted by government commissions with shortcomings, as additions. As we see, decisions by government commissions are not that firm. If the decision on the fact of accepting a facility itself is subject to correction, then there is no doubt that an improper appraisal is also subject to correction. But, say, we agree with I. F. Yermakov's claim. Let us assume that the Stroybank cannot recalculate the size of indications about shortcomings and defects received, even in such a case should he not return partially retained bonuses and, in accordance with USSR directives and regulations on bonuses for putting facilities in operation, not pay bonuses in general? Briefly, why look for loopholes for careless workers?

The question of appraising the quality of construction is not limited by the framework of construction organizations and ministries. It concerns consumers, customers, design organizations, all departments represented in government receiving commissions and local Soviets of People's deputies. The interests of this matter demand that the appraisal be objective and based on principles. Its overstatement at any level -- when receiving work from a brigade, a facility for operation, when selecting candidates for any kind of competition must be considered an addition, causing harm to the government, hogwash. Such phenomena must be given the proper appraisal at the Fourteenth Plenum of the CPB Central Committee which demanded "waging a decisive fight against facts of additions and hogwash as an intolerable evil, disgraceful phenomenon incompatible with the socialist way of life."

2291
CSO: 1821

CONSTRUCTION MINISTRIES TO BE SELF-SUPPORTING

Kiev PRAVDA UKRAINY in Russian 14 Aug 79 p 2

[Article by B. Lisitsyn, deputy manager of the Ukrkontora of the USSR Stroybank]

[Text] The Mintyazhstroy [Ministry of Construction of Heavy Industries] and Minmontazhstroy [Ministry of Installation and Special Construction] of the Ukrainian SSR along with the Republic Office of the USSR Stroybank are carrying out a large economic experiment -- to achieve the putting in action of facilities regularly, reduce the time and improve the quality of construction and at the same time increasing the productivity of labor and raising profitability. In the future -- transfer the ministries to self-supporting basis.

In the past, the efficiency of builders' work was measured by cubic meters of the ground taken out and of concrete laid, tons of installed equipment and kilometers of utility pipes. Customers paid for individual kinds of work by stages, as a rule, independently of the readiness of capacities for release to the customers. But customers are not interested in individual stages, they want a fully completed facility. It is this very principle that lies at the basis of the relationships between customer and contractor. Billing is done after completion of construction and before that all work is done on credit. Here, a different percentage for bank credit, and principles of forming profits of construction organizations were found to be an efficient incentive. If construction is completed on time or ahead of schedule, the interest rate for loans is minimal. If the builders did not keep to the schedule, the interest rate increased directly proportional to the delay.

So far, not enough time has passed to make exhaustive conclusions on the results of the experiments. But comparing the technical-economic indicators of ministries for 1978, it is possible to talk about some shift in a better direction compared to the previous year. For example, the plan for putting in operation production capacities and facilities,

housing, preschool establishments, etc. has improved. The number of organizations not coping with tasks for increasing the productivity of labor and unproductive expenditures decreased.

Many collectives have reduced construction schedules. Thus, in the "Dneprogorstroy" Trust of the "Dneprotyzhstroy Combine facilities were erected 1.4 months faster. Some 40 percent of facilities were completed, on the average, in 12 months for a norm of 16 months by the "Dneprometallurgstroy" Combine.

However, construction time is prolonged in a number of cases. The average time for five facilities released by the "Zhdanovstroy" Combine was 29 months for a norm of 15 months; and by the "Krivogradtyazhstroy" Combine -- 30 months instead of the required 29 months.

Why did we not achieve the desired results? To a certain extent, this can be explained by the psychological unpreparedness of the low and middle ranks of builders, as well as by late delivery of methodological and norm documents of the plan regulating the order of conducting the experiment.

But the main thing, of course, is the fact that the "gross" -- the calculating indicator of the work fulfillment indicator, is evaluated higher until now than the volume of commercial product, since the saving or overexpenditure of the fund depends on it. To reduce the pursuit of the "gross", it is necessary to accelerate the introduction of an order in which wage money is allotted in accordance with the completion of the commercial product plan and the increase of the uncompleted production within the framework of the norm. It would appear that the decree by the Central Committee of the CPSU and the USSR Council of Ministers "On improving planning and strengthening the effect of the economic mechanism on raising the effectiveness of production and quality of work" will force managers of construction organizations to solve this important problem in a business-like manner.

Of great importance in doing the experiment is modern financing. Regrettably, practical preparation and checking documentation stretches to April. The role of the builder in this case is reduced. The complicated and long process of agreeing on the volumes of commercial product between customers and contractors provides no incentive to the successful carrying out of the experiment and delays the implementation of organizational-technical measures developed for high priority facilities and construction sites.

This situation came about because the two-year plan for putting in operation production capacities by customer ministries is not developed, continuous planning is practically not introduced, while the five-year plan of the tasks by years did not become the basis of work of construction subdivisions.

Moreover, the experiment demands that the system of material-equipment supply be changed. The existing system for determining material-equipment resources per one million rubles of the cost of construction-installation work does not meet present requirements. The entire complex of necessary materials, the technological sequence of their shipment and specifications is not being taken into account.

Profit is the generalizing indicator that determines the quantitative and qualitative sides of construction organization activity under experimental conditions. Last year the Minmontazhstroy fulfilled the profit plan, while the Mintyazhstroy had a shortfall of 24 million rubles in profit.

Furthermore, the same collectives of this ministry had above-plan expenditures of material and equipment resources, did not utilize machines and devices fully, exceeded overhead expenses and did not fulfill organizational-technical measures on raising the productivity of labor, which led to overspending of the wage fund; 37 organizations exceeded the estimated cost.

Of course, there are still many unsolved problems. Yet, the economic experiment carried out in basic construction ministries on the further development of planning of production-economic activity and increasing the role of economic methods in work is very promising. To release commercial products, to put in operation enterprises, capacities and facilities with minimal production costs on schedule -- is a problem arising directly from the last decree of the party and government. It is desirable that builders, planning organs and material-equipment supply organs participate more actively in carrying out the experiment. In fact, its success depends on them to a great extent.

2291
CSO: 1821

CAPITAL INVESTMENTS IN CONSTRUCTION

Moscow PRAVDA in Russian 29 Aug 79 p 2

[Article by T. Khachaturov, academician: "Capital Investments: Course on Efficiency"]

[Text] Our country is rightfully called a vast construction site. In eight years alone (1971-1978), the basic fixed capital -- the main part of the national wealth of the Motherland -- increased by 89 percent and now exceeds a trillion rubles. Demands for construction increase along with its scale. The essence of these demands was expressed by Comrade L. I. Brezhnev at the 25th party congress: "It is necessary to change the very approach to planning and utilizing capital investments, plan actual production and new construction as one single whole... Build quickly, efficiently and on the basis of modern equipment -- these are components of high efficiency in capital construction."

The decree of the CPSU Central Committee and the USSR Council of Ministers "On improving planning and strengthening the effect of the management mechanism on raising the efficiency of production and the quality of work" outlines a system of measures on improving construction in the country. They span the entire construction-industrial complex, including also, besides the construction industry, sectors that supply materials, structures and parts, technological equipment and machines, sanitary, electrical and other equipment. These measures are directed toward improving all stages of the construction cycle -- from designing to assimilating all links of the economic mechanism -- from planning and material incentive to organizational forms of construction management.

Of primary importance is the solution of the problem on modernizing and reequipping existing production facilities. Many years of experience indicate the indisputable advantages of modernization compared to new construction. This was reflected in the policy of capital investments in reequipping existing enterprises. Their ratio increases constantly in the total volume of industrial investment. In 1960, it was 55

percent, while in 1977 it increased to 69 percent. However, it grew slowly (in the last two years -- by two percent) and in some industries as, for example, machine building, even decreased.

There are many reasons for this situation. To modernize an enterprise, as a rule, is much more complex than to build a new one. Modernization, to a certain extent, interferes with basic production and the output is of main concern to workers. There is a real contradiction between the requirements for improving production and the necessity of fulfilling specified plans.

To remove this contradiction the very approach to planning is changed -- existing production and new construction will be considered as a single whole. Capital investments in five-year plans of the material production industries provide for the planned increase in the volume of products and services; in the five-year plans, balances and accounts are developed for utilizing available production capacities and fixed capital, as well as summary plans for modernizing and reequipping existing enterprises.

The preparation of such balances will detect the available capacity reserves and will produce technical-economic substantiations for modernizing existing enterprises which actually need it. Modernizing enterprises with their own money is frequently delayed because to use this money it is also necessary to have corresponding material resources and capacities. Even now, a high priority allotment of material resources, equipment and capital investments is provided for this purpose. Nor should the creation of the necessary technical base to produce special mobile equipment to carry out the modernization be forgotten.

Balances of production capacities and modernization plans for enterprises open up real possibilities for limiting new construction. The adopted order provides for allotting money for construction and expansion only when the requirements in a given product cannot be met by existing enterprises taking into account their modernization and reequipment. This will make it possible to concentrate capital investments on a smaller number of facilities.

The turning of the investment policy in the indicated direction facilitates the expansion of the rights of enterprise and association managers. They themselves will approve the construction lists for reequipment of their own production facilities independently of the total estimated cost of the work, but, of course, within the limits established for them.

Special bonuses are provided for fulfilling the work on reequipping existing enterprises. Money for bonuses must be provided in the estimates and cannot be used for other purposes.

It should be noted, however, that conditions of developed socialism also require a new approach here. Its essence is that capital investments are an important means for improving the industrial and regional structure of social production, accelerating technical progress and raising the economical balance. These very criteria are used as bases for solving this or another problem about a large construction site.

This requires a radical review of all the existing practices of planning and construction organization.

It is well known that one of the basic reasons for prolonging construction is dispersing capital investments among an extremely large number of construction sites. Some 250,000 to 260,000 production facilities alone are being built at the same time. This is more than the available resources and capacities of construction organizations.

The volume of incomplete construction has increased systematically in recent years. The ratio of incomplete construction, with respect to the annual volume of capital investments, increased from 69 percent in 1965 to 75 percent in 1975 and to 85 percent in 1977. This prolongs the time of putting facilities in operation and not only reduces the efficiency of the construction itself, but has a negative effect on the entire national economy and destroys the "proportionality" in the development of its economics. The products which were planned to be obtained in the new capacities, were previously distributed in provision plans and funds were allotted for it; any facility not released for operation in time disrupts plans of consumer enterprises and these disruptions spread farther and farther to entire industries.

The decrees of the Central Committee of the CPSU and the USSR Council of Ministers place forward the principle of comprehensive construction -- as a basis for increasing the efficiency of capital investments on a government scale. At present, a great number of territorial-production complexes exist or are being built. The development of comprehensive scientific-technological and social system programs is an important component part of long-range government plans of economic and social development.

The implementation of such programs and the erection of large facilities requires a long time not only for construction, but also for the preparation of design documentation. Therefore, to shorten the time for placing facilities in operation, it is important to save time primarily in designing.

For this purpose, the design-estimate business is being improved. In particular, when construction time exceeds two years, plans and estimates should be developed not for the enterprise as a whole, but for its first stage. The planning for the succeeding stages will proceed simultaneously with the construction of the first stage so that the necessary planning-

estimating documentation will be ready before the start of construction of the respective stage. The construction of the Volzhskiy Automobile Plant gave us rich experience here.

To insure continuous action of capital construction plans and to increase the responsibility of customers and contractors, it is planned to include in the plan only those construction sites for which there is approved planning-estimate documentations, as well as working drawings for an annual volume of work by 1 July of the year preceding the planned one.

The system of improving construction has an important place in the plan stability of improving construction. Numerous corrections and changes in the plan -- are among the factors that reduced the efficiency of construction. Starting with the 11th Five-Year Plan period, a stable five-year plan will be established for all construction organizations (with annual target distributions), balanced with the capacities of these organizations, as well as the material, financial and labor resources.

The basis of this plan will be the list of new construction projects -- an unchangeable document for the entire period of construction, compulsory for customers, contractors, planning and financial organs, as well as suppliers of equipment and structures. Changes in the construction list indicators may be introduced only when reviewing the project in connection with using improved equipment and progressive technology.

New and undoubtedly more progressive indicators on construction were established. The most important of them was the putting production capacities and facilities in operation. The evaluation of the economic activity of construction organizations and their material incentive will be done on the basis of results of fulfilling tasks on putting in operation production capacities and facilities, commercial construction products (i.e., according to the cost of the construction-installation work on enterprises, facilities and high priority complexes, and preparation of output products released to the customer), and an increase of the productivity of labor and profit.

This creates new incentives in the operation of construction-installation organizations. Up to now the basis of their activity was the given volume of capital investments, i.e., essentially the money expended was the basis of such planning. The more money spent or "assimilated," the higher the evaluation of the work of a given organization. This led to the unsubstantiated use of expensive materials and structures and concentrated builders on more "advantageous" stages.

Now the most important thing is releasing completed facilities. At the same time, the more economically material and labor resources were used, the higher the profit of the organizations and, therefore, the greater were the economic incentive funds.

To transform these evaluation systems into reality, it is important to complete billing between customers and contractors for enterprises fully completed and released for operation and facilities in accordance with the estimated cost of commercial construction products. With such an order of payments, usual for industry, where the products are manufactured first and are then paid for, incentives are created for the most rapid completion and release of the facilities being erected. The issuing of advances by customers for covering expenses of builders ahead of payments for completed facilities is stopped. Now, these expenses will be covered by bank credits. This should facilitate the effort to release facilities on time and ahead of schedule.

The role of long-term credit and financing of capital construction increases. The use of credit increases the responsibility of both contractors and customers. Credit must be paid for and must be repaid. Therefore, it is necessary to substantiate thoroughly the expediency of expenditures and insure their effectiveness -- it is desirable and possible to at least double the ratio of long-term investments and financing in the nearest five-year plan periods.

In the system of measures to increase the efficiency of construction, it is also planned to increase the responsibility of industries related to construction and introduce more progressive forms of the organization of labor and more efficient forms of management. It is important to note that these measures open up new possibilities for all workers of the construction-industrial complex for increasing the quality of work, efficiency of production and accelerating scientific-technical progress in construction.

2291
CSO: 1821

ADHERENCE TO PLAN PRIORITIES DEMANDED

Moscow PRAVDA in Russian 20 Aug 79 p 2

[Article by M. Moro , engineer, Samarkandskaya Oblast: "Is Construction in the Plan"]

[Text] Foreman G. Il'yayev's busy day ended late. But it was not fated for him to rest peacefully. A car was sent to his house for him by A. Mukhammadiyev, chief of the oblast UVD [Administration of internal affairs] , who called the foreman in for an explanation. There was a snag in the construction of the administrative building of the department managed by A. Mukhammadiyev. And you can imagine that the talk resulted in action.

In one way or another, before and after this particular case, important customers have concretely indicated many times to SMU-3 managers of the "Samarkandkhimstroy" Association to what particular facility they must direct primarily installers and equipment. They were aided in this in every possible way by GAI [State automobile inspection] . There were cases where they stopped cement trucks right on the road and instructed drivers where to carry the cement.

Of course, the oblast department building, with a total cost of about three million rubles, being built actually without approved planning-estimating documentation, became the most important facility in the city. The customer wants the builders to overfulfill their annual task by two to three times. And, probably, they will achieve that: the facility is being built on the shock work basis, using two shifts.

The SMU-3 tasks were overfulfilled two times also in erecting the 11-story administrative building of the oblispolkom. One would think it necessary to be glad about such successes. But on the remaining 24 facilities of this administration where the customers are farther away or are of lower rank, nothing similar is observed. Even on such an important construction site as the "Kinap" Plant, the planned tasks are not being fulfilled and the stomatological clinic, that was to be completed last year, is still under construction.

Perhaps this collective in Samarkand is a very lagging one and the cited facts are unfortunate accidents? Not at all. The association has not coped as a whole with last year's plan and things have not improved now, either. Capacities a the basic industrial facility -- the superphosphate plant, are being put in operation with a delay. The starting up of a number of other enterprises is threatened with failure. Thus, capacities for reprocessing tens of thousands of tons of grapes in season at the Krasnogvardeyskiy Combine must be in operation in August, while the construction plan is only 64 percent complete. Things are no better with housing. Last year only half of the program was completed and there was a 20,000 square meter shortfall of housing in the oblast.

"Of course, we can still brag about the good organization of labor and high production standard," said B. Rakhimov, general director of the association, "but there are interruptions in supplies. We are idle due to lack of metal and cement. The thing that causes the most interference with successful work is the planning cost. Take the superphosphate plant. Every year the chemical people reduce the volume of work on high priority complexes and then it is necessary to speed up completion work to the detriment of all other customers. At present, concluded the director, we have accumulated so many high priority facilities that it is hardly possible to release them all for operation."

That is the way it is. But on several important nuances the general director preferred, for some reason, to be silent. Actually, an error was permitted in establishing the volume of work at the superphosphate plant. For example, last year 3.5 million rubles were allotted for the high priority complex. Actually, to put it in operation, work in an amount greater than ten million rubles had to be done. To put in operation two other facilities, ammonium phosphate and phosphorous acid -- almost six million rubles more were required.

The chemical people errored in their calculations. Of course, this reflected on other facilities. However, another thing was noteworthy. Last year the association was unable to cope with the government plan. At the same time, it fulfilled additional tasks established by oblast and republic organizations. These amounted to four million rubles worth of construction-installation work.

Nevertheless, this year the association was given additional above-plan tasks for more than 4.5 million rubles. Among them are facilities of whose need there can be no doubt. Yet, one could do without a sporting hall and cinemas and, of course, one could wait awhile to build seven administrative buildings. We do have a planned economy and, if it becomes unbearable so to speak, go to the planning organs and prove that there are more important facilities for Samarkand than administrative buildings. Perhaps they will understand. Then they will include the needed capital investments in the established order in the plan.

Yet, obviously, local comrades are not accustomed to this order. They prefer round-about maneuvers and look at the government plan, in this case, from the height of their own bell tower. Round-about maneuvers, however, are far from good in all cases. As far as government discipline and socialist economy laws are concerned, nobody is allowed to avoid them, no matter what his position and who he is. This our party teaches us.

Of course, good intiative must be rewarded. But we are not talking about the depraved practice whose name is local interests. Judge for yourself. The capacities and material resources of construction people are not sufficient, yet they are given tasks above the plan as if resources were pouring from a horn of plenty, along with facilities in accordance with these tasks being transformed into high priority ones. In that same Samarkand, the five-months plan for construction sites for local customers is fulfilled 97 percent, while for the most important national economic industrial facilities such as housing, schools, kindergartens, clinics, hospitals, etc. --- only 81 percent.

It is interesting that in loading the builders with additional tasks, the oblast organizations give them very little material resources. For example, the Samarkand people were "lucky" -- they at least received for these purposes 13 percent of the metal and 20 percent of the cement of their annual requirements. But generally, orders state that ministries and departments must assimilate capital investments for additional tasks established for them "by the most economical and efficient utilization of material and equipment resources, allotted to them according to the plan of economic and social development." But is it not clear to everybody that for a general shortage of materials, it is impossible to save such an amount. At the same time, the Republic Gosplan allotted the following to the Ministry of Construction for doing the additional tasks: only five percent for rolled stock, six percent of lumber and slate shingles, which is only 15 percent of the requirements. As far as linoleum, facing plates, radiators, petroleum bitumen and a number of other materials, they do not even promise these.

Yet, the same Samarkand builders take cement and metal for the administrative building and the sports complex from reserves, intended for the most important industrial facilities -- the "Kinap," "Gelion" plants, etc.

In other words, what it was decided to create in the area by the government plan is pushed into second place and what was planned for additional tasks is moved to first place. It is not surprising that each so-called, prestige facility (notice what term was specially used!) has its own guardian. And if there is none, the customer has recourse to his power, as was shown by the chief of the oblast UVD. That is the way materials, equipment and labor got to these "prestige construction sites out of turn."

This is also true in other republics and oblasts.

It should be noted that at times additional tasks, bypassing ministries and trusts, are even established by rayon organizations. Understanding quite well the illegality of this, but not wishing to spoil interrelations with local managers, the builders not only do not complain about the, but mask the nonplanned work and show them as overfulfilled tasks on the basic facilities.

A characteristic example in this respect is mobile column No 111 of Trust No 13. According to the list of new construction projects of the Kashkadar'inskiy oblispolkom, it must assimilate in one year 30,000 rubles for civic improvements of the Shakhribsabz center. Last year, supposedly, it had already spent 39,000. Actually, only three thousand rubles were spent on this direct purpose. The remainder was spent on one-time nonplanned tasks such as a summer cinema, a meat pavilion at the kolkhoz market, the repair of gorkomkhoz housing and shops of the local wine plant, etc.

At the same time, at the year's high priority facility -- for the processing of low quality cocoons of the Shakhrisabskiy Silk-Weaving Factory, the task is not being fulfilled.

The decree of the Central Committee of the CPSU "On improving planning and strengthening the effect of the management mechanism on raising the efficiency of production and quality of work" specifies raising planning discipline in capital construction, spending national means thriftily and reducing the number of unfinished planned facilities. It may be said with full assurance that to close one's eyes to local improprieties and not carry on a decisive battle against them -- means not improving capital construction but, on the contrary, to accept the fact that the number of facilities not completed on time will increase and that, as before, money, material and labor resources will be dispersed.

2291
CSO 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

CONSTRUCTION FOR SUMMER OLYMPIC GAMES

Construction Progress

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 7, Jul 79 pp 29-30

/Article by V. G. Trofimov (Moscow): "Chronicle of the Olymic Construction Projects"/

/Text/ Thus, in a year--on 19 July 1980--the Olympic torch of the 22d Summer Games will flare up in the giant bowl at the Great Sports Arena of the Central Stadium imeni V. I. Lenin in Luzhniki. They will be held for the first time in a socialist state, therefore right now the attention of the sports community is already riveted on Moscow, and television companies, radio, the movies and the press of countries of five continents are reporting extensively on the progress of the preparation for the 1980 Olympics.

A few words about the Olympic torch. By tradition it is lit in Greece and delivered to the next capital of the Games. That is how it will also be in 1980. At the suggest of the Organizational Committee of the 1980 Olympics the International Olympics Committee approved the decision to deliver the torch to Moscow by a relay race of runners via the shortest route through Bulgaria and Romania to the Soviet Union. The entire route covers 5,000 km. How many runners will take part in the relay race, if each of them runs a kilometer? The route through Moscow alone will cover about 50 km. And the next day, in special railroad cars the torch of the Olympic Games will be delivered to Tallin, Leningrad, Kiev and Minsk, where the Olympic Games will also be held.

But all this is in a year, and at present stepped-up work is under way at the majority of construction projects.

The meeting of the party and economic aktiv of the Main Administration of Industrial Construction of the Moscow Gorispolkom discussed the results of the construction of the facilities of the 1980 Olympics during the first quarter and the tasks on the fulfillment of the plan and obligations during the first half of the year and for 1979 as a whole. This main administration is constructing the largest Olympic facilities of the capital. The

meeting noted that 1979 is the decisive year in the construction of the facilities of the 1980 Olympics. Nearly all of them should be put into operation by the end of this year, and some of them--the large complex of sports facilities in Luzhniki, the Ostankino radio and television complex and a number of others--by the start of the Sports Festival of the Peoples of the USSR.

Especially great responsibility rests on the construction workers of those projects which should be put into operation in early 1980, two to three months before the Games. Everything must be planned so that each day in the construction of such large facilities as, for example, the sports complex on Prospekt Mira, the hotel complex in Izmaylovo or the Olympic Village would be equally intense, would proceed precisely according to the hourly schedule, and all the work would be distinguished by high quality. Let us tell about how things are going among the construction workers on Michurinskiy Prospekt.

The Olympic Village

Incidentally, why is the town, where the sportsmen will life, called a "village"? For it is a matter of a complex of 16-story modern buildings. There is also a tradition here.

In 1932, when the 12th Olympic Games were held in Los Angeles, wooden cottages, which both in their appearance and in the layout were reminiscent of a village, were built for their participants. Since then the place at the Games, where the sportsmen live, has been called the Olympic Village.

From afar, when you approach the end of Michurinskiy Prospekt, the Olympic Village is already visible. Beautiful 16-story 3-section buildings, which are grouped in sets of six buildings along the perimeter of three spacious landscaped main courtyards, rise high into the sky.

Just recently at the construction project more than 1,000 highly skilled workers were employed, the most modern domestic equipment was used. The rate of construction of the buildings was high: in three months a 16-story structure.

The brigades of the well-known Moscow construction workers I. Demin and A. Tikhonov adopted a higher obligation: to complete the construction of all the apartment buildings of the Olympic Village two months ahead of time.

The construction of tens of complex facilities--a polyclinic, a director's office, a cultural center, a dining room, a personal services combine, a department store and a sports complex--is taking place at the same time as the construction of the apartment buildings. Painters, plasterers, tilers and parquet layers are at work here, the installation of the equipment is being carried out.

The seven-story building of the polyclinic is located next to the residential zone not far from the sports complex. Skilled physicians will be able if necessary to give rapid medical assistance to 2,000 patients a day. Bandaging stations, departments of traumatology, rooms for electrotherapy and phototherapy, massages and physical therapy are called for here.

The Olympics dining room will be able to feed 4,000 people at one time. It consists of four blocks which are furnished with the latest kitchen equipment.

The six-story administrative building, which is officially called the directorate, is of great interest. A post office, telephone and telegraph service, a department of the bank, a registration hall and other administrative facilities will be located on its first two floors.

The third floor is being set aside for a reception room, the offices of the mayor of the Olympic Village and his assistants. A reception hall, rooms for correspondents and translators and the protocol division will be located nearby. The next floor is being set aside for the groups of the ceremonial and representatives of cultural groups, while the representatives of sports federations will be located even higher.

Chairman of the International Olympics Committee Lord Killanin, after visiting the Olympic Village, noted that in Moscow the Olympics participants will live under better conditions than at all the Games prior to this.

Let us recall that in the apartment houses of the Olympic Village there are two two-room and two three-room apartments on a floor of each section. The living space of the two-room apartment is 32 m^2, the kitchen area is 9.5 m^2, while those of the three-room apartment are correspondingly 46 and 10.5 m^2. No more than two sportsmen will live in each room, and each national delegation will receive in the apartment houses space for the storage of sporting equipment.

The beautiful sports complex, which consists of an outdoor and an indoor sports nucleus, will enable the sportsmen, without leaving the Olympic Village, to do warm-up exercises and train. Running tracks, sectors for jumps and throwing, three soccer practice fields, basketball and volleyball courts have been built at the outdoor sports nucleus. The indoor sports nucleus contains three halls--general-purpose, gymnastics and games, a swimming pool with various tanks and a diving pool, as well as medical offices.

The Olympic Village could probably be called a city within a city. And, of course, it also requires the construction of a number of facilities outside it. A first-class main road, which will connect it with the Amin'yevskoye Highway, is being laid to the Olympic Village. Its renovation is being carried out, the construction of the traffic interchanges of two motor vehicle overpasses and one rail overpasses, in the 70-m underground tunnel of which motor vehicles will travel, while trains will run on top, is under way. This

Olympics route will become a part of the Kashira-Rublevo main high-speed suspended highway, the construction of which is provided for by the General Plan of Development of Moscow.

A 1-km section of Michurinskiy Prospekt, which is 20 m wide, has been laid to the Olympic Village, while on the village grounds, in the floodplain of the Samorodinka River, specialists are building a cascade of ponds.

The new taxi park No 21 has been built next to the Olympic Village, on Bol'shaya Ochakovskaya Ulitsa. At present the residents of the nearby microrayons--Kuntsevo, Ochakovo and Davydkov--are using its services. During the Olympics it will daily put up to 1,000 cars onto the streets of Moscow and will become the basic enterprise for serving the participants and guests of the largest sports forum in the world.

As is known, after the Olympic Games the complex of buildings of the village will be transformed into one of the model microrayons of Moscow, which has not only first-class apartment houses, but also an entire complex of personal service and cultural institutions. Several thousand Muscovites will live in it.

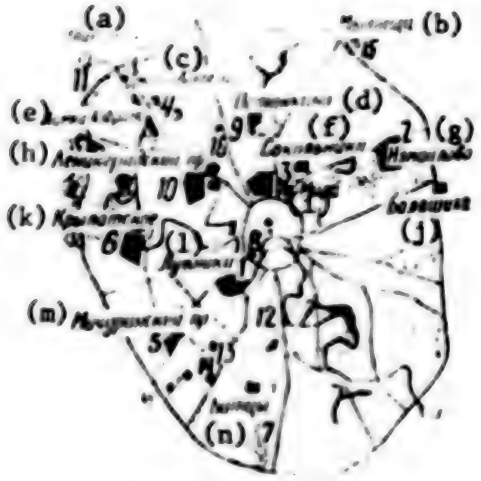
All-Purpose Gymnasium

Moscow NA STROYAKH ROSSII in Russian No 6, Jun 79 pp 52-55

/Article by Chief Architect of the Central Military Planning Institute, Honored Architect of the RSFSR Yu. Krivushchenko: "The All-Purpose Gymnasium of the Central Army Sports Club"/

/Text/ The all-purpose gymnasium of the Central Army Sports Club, from the stands of which in the summer of 1980 5,000 spectators will be able to follow the keen competition of the Olympic women's basketball teams, will occupy a prominent place in the ensemble of sports structures on Leningradskiy Prospekt. And after the Games its arena, which measures 48 X 27 m, will become the site of matches and training exercises in all types of hand sports: basketball, volleyball, handball, tennis and ping-pong. Boxing, wrestling and fencing matches will also be able to be held in it. For this the change-over components will be quickly delivered to the arena from the ground floor through trap doors with hoists.

Commentators' booths, radio centers, audio and light panels will be located above the stands of the gymnasium, the height of which will reach 18 m, behind a continuous band of picture windows. However, from them--in the form of a chandelier with two screens, which are hung from the ceiling in the center of the gymnasium--it will be possible to see well both from the stands, which are located along the arena, and from the balconies, which are located above its ends. Boxes for honored guests with independent entrances and service blocks are planned in the gymnasium.



Location of Olympic Facilities in the Structure of the City (see NA STROYAKH ROSSII, No 1, 1977):

1--sports structures in Luzhniki: an all-purpose gymnasium (No 2, 1977), the building of the ASU-Olimpiada (No 8, 1978), renovation of the existing complex (No 4, 1979); 2--Olympic facilities in Izmaylovo: an all-purpose gymnasium (No 3, 1977), a hotel complex (No 6, 1978); 3--the sports complex on Prospekt Mira (No 4, 1977); 4--Dinamo All-Purpose Gymnasium in Khimki-Khovrino (No 5, 1977); 5--the Olympic Village: the general plan (No 7, 1977), the service center (No 8, 1977), the administrative center (No 9, 1977), the cultural center (No 12, 1977); 6--the sports complex in Krylatskoye: the bicycle track (No 1, 1978), the bicycle road and archery fields (No 2, 1978); 7--the equestrian sports base in Bittsy (No 3, 1978); 8--the main press center (No 4, 1978); 9--the television and radio complex in Ostankino (No 5, 1978); 10--the complex of structures on Leningradskiy Prospekt: the soccer and field and track fields of the Central Army Sports Club (No 7, 1978); the passenger service building of international airlines (No 3, 1979); renovation of the Dinamo Stadium (No 5, 1979); 11--the Planernaya Equestrian Sports Base (No 9, 1978); 12--the international post office on the Warsaw Highway (No 10, 1978); 13--the hotel for foreign sports judges (No 11, 1978); 14--the automatic long-distance telephone exchange building on Ulitsa Butlerova (No 12, 1978); 15--Dinamo Shooting Range in Mytishchi (No 1, 1979); 16--the hotel of Dmitrovskoye Highway (No 2, 1979); 10--the all-purpose gymnasium of the Central Army Sports Club.

Key:

a. Planernaya
b. Mytishchi
c. Dmitrovskoye Highway
d. Ostankino
e. Khimki-Khorvino
f. Sokol'niki
g. Izmaylovo
h. Leningradskiy Prospekt
i. Prospekt Mira
j. Balashikha
k. Krylatskoye
l. Luzhniki
m. Michurinskiy Prospekt
n. Bittsy

The high quality of color television broadcasts is ensured owing to floodlighting using metallohalogen lights, the intensity of which within the playing area will reach 2,000 lux. And the footbridges under the ceiling of the gymnasium, which are faced with anodized gold-colored aluminum and on which the floodlights will be placed, will become a part of the system of the architectural solution of the suspended aluminum ceiling.

The spectator area as if encompasses the gymnasium on three sides. Four corner staircases and four main staircases--from the first floor to the second story--will ensure the rapid filling and emptying of the stands, spectator entrances are also planned from the three sides. Under the stands there are vestibules with cloakrooms for the spectators, on the ground floor there are smoking areas and bathrooms.

The refreshment counters on the second and third floors unite the vestibule groups of both stands. Storage, warehouse and general facilities are located on the ground floor and are connected with the refreshment counters by a stairway and elevator block. The access ramp for motor vehicles to these services and a spacious unloading room will create the conditions for good sanitation maintenance of the service area.

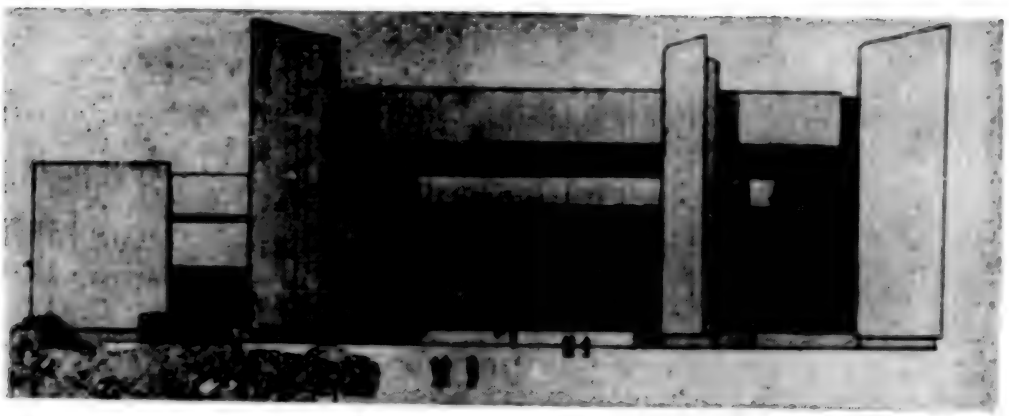
The complex of the all-purpose gymnasium has an extensive group of rooms for serving the sportsmen, judges and trainers, as well as two training rooms, each measuring 36 X 18 m and 8 m high, with basketball and volleyball courts which take up part of the second and third floors. The vestibule group, 15 dressing rooms with showers, of them 11 for the sportsmen and 4 for the judges, will be located below them, on the first and ground floors. A refreshment counter, saunas, rehabilitation rooms and classrooms will be at the disposal of the sportsmen.

A press center with separate vestibules, a communications center, a press bar and convenient access to the press boxes, which are located in the stands, will be included in the service group. During the Olympic Games complexes of rooms with vestibles, work rooms, meeting rooms and refreshment counters, which are conveniently linked with the box seats, are stipulated for accredited individuals--representatives of the International Olympics Committee, the national committees and the International Sports Federation.

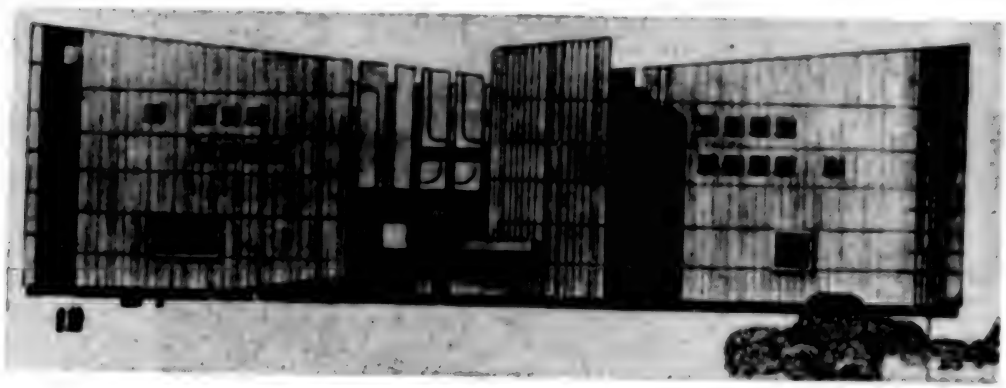
The upper floors of the gymnasium building are intended for administrative services, which have their own staircases and elevators. The well-defined zoning of the various rooms of the sports structure is one of the fortunate aspects of the plan.

The functional zoning is also revealed in the decision on the facades. The entrances for spectators are marked by wide staircases, large high-relief compositions made from stamped copper, extending overhangs with decorative lamps installed under them. The entrances for sportsmen, the administration and press representatives are located on the opposite side, which will ensure the separation of the flows of visitors on the approaches to the

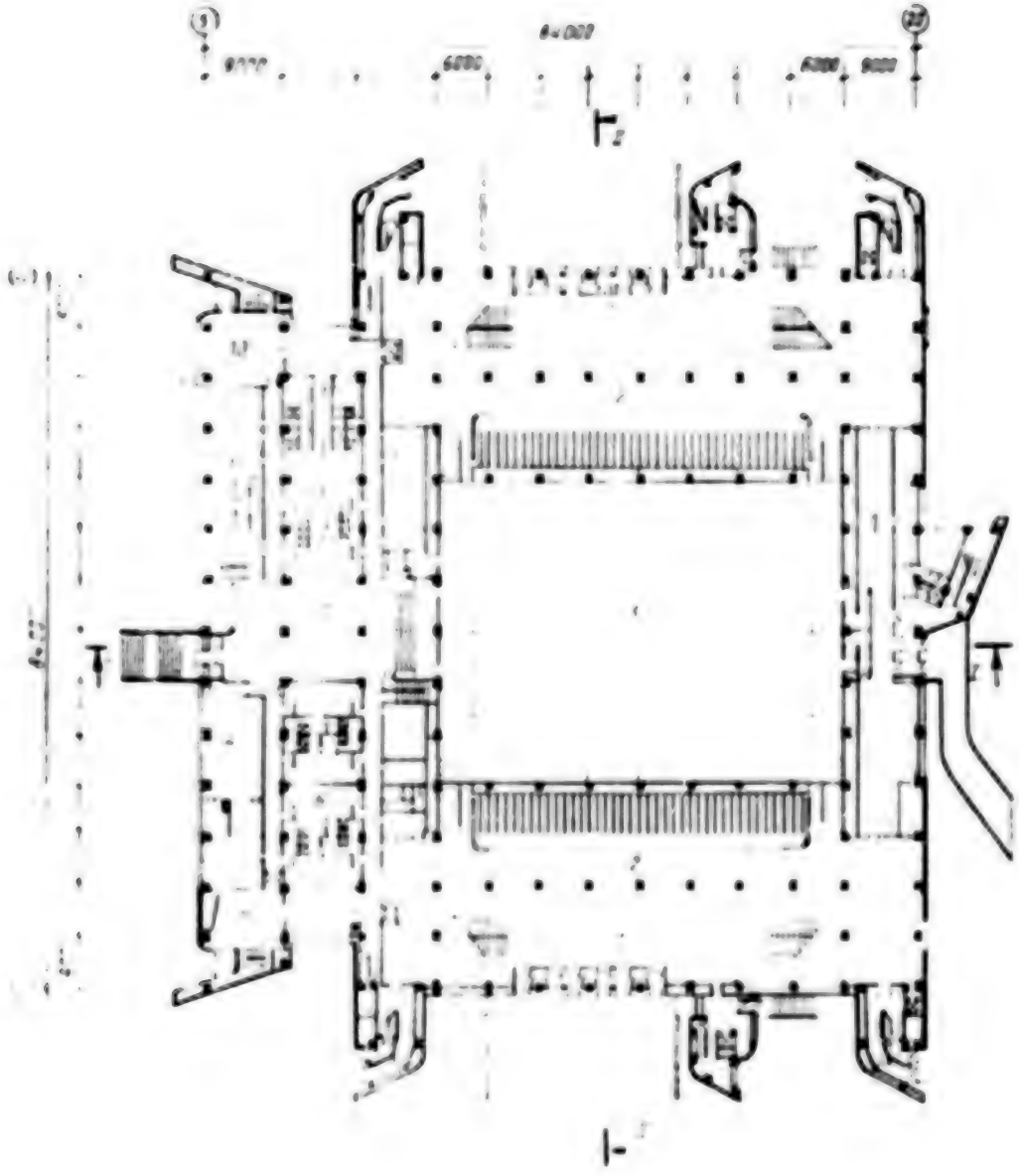
building. This also made it possible to plan differentially the parking places for motor transport.



Main Facade of the All-Purpose Gymnasium of the Central Army Sports Club, Seen From Leningradskiy Prospekt



Side Facade of the Gymnasium, Seen From the Soccer and Track and Field Complex of the Central Army Sports Club

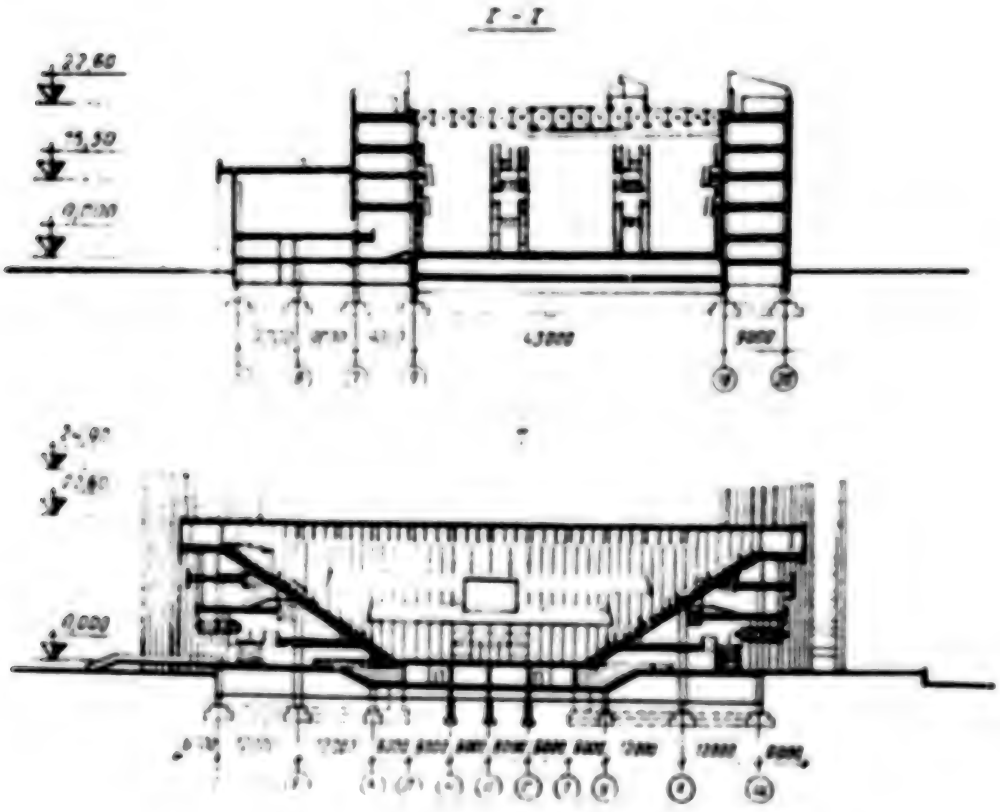


Plan of the First Floor: 1--vestibules; 2--cloakrooms; 3--arena; 4--refreshment counter; 5--medical station; 6--dressing room for sportsmen; 7--dressing room for judges; 8--vestibule for sportsmen; 9--press vestibule; 10--service entrance.

For honorary guests the entrances are accentuated by vertical plastic six-story "tower" stairway and elevator blocks. Extending along the corners of the building and along the center lines of the facade, they give a sculptural appearance to the quite simple space of the gymnasium. And along with the 35-m sign post installed in front of the sports buildings they blend

contrastingly with the stretched out building of the soccer and field and track fields.

The finish of the facades of the architectural spaced is also maintained in a uniform style--with white stone or a finished surface simulating it on white cement, which covers the keramzit protective constructions. The use of gold-colored aluminum and embossed copper sheet for the panel, which tells about the Olympic Games in artistic images, will impart elegance to the buildings.



Cross Section and Longitudinal Section of the Building of the All-Purpose Gymnasium of the Central Army Sports Club

The design decision calls for a high degree of prefabrication and industrialization of the construction. At the basis of the building are a metal supporting frame with a spacing of the columns of up to 12 m and a standardized system of floors, the foundations are precast out of reinforced concrete block measuring 2.5 X 0.6 X 0.6 m. All the engineering lines are united in vertical shafts.

Two machine shops with ventilation plants and air conditioners will be located on the ground floor. And the refrigeration center for supplying the entire complex of the Central Army Sports Club will be in a special building.

The roof of the gymnasium measuring 48 X 84 m in much the same way as the roof of the soccer and field and track fields is being made from steel block panels with a span of 48 m, with working members in the form of light girders, along the top and bottom flanges of which has been welded a solid steel prestressed sheet 2 mm thick, which at the same time is the base for the installation of the ceiling in the gymnasium.

The block panels arrived from the plant in the form of individual members and at the construction site were assembled into blocks measuring 48 X 3 m with a weight of up to 20 tons in a special jig, which provides the desired configuration. Their installation was carried out by two MSK10-20 tower cranes.

Slag cotton tiles with a greater rigidity than usual were installed over the block panels as insulation, and roofing made of a bitumen-nairit material reinforced with glass gauze was put directly over it.

The high degree of prefabrication of the elements of the roof afforded an opportunity under winter conditions to install it in two months.

Shaped perforated aluminum members in the form of panels 6 m long and 0.3 m wide, with a thickness of the sheet of 0.8 mm, above which a thin acoustic mat made from fiberglass fabric will be laid, was used for making the suspended acoustic ceiling.

Stained glass windows made from anodized aluminum are planned. Natural stone and decorative artistic components, which depict themes devoted to the army and sports, are being used in finishing the interiors.

Fountains, sculptures and landscaped recreation zones will embellish the area adjacent to the all-purpose gymnasium, the soccer and field and track fields and behind the airport building--all this should emphasize the importance of the complex as a large center of sports training.

The buildings of the centers of international airlines and the computer center, which are being erected nearby, with the vertical elements of the facades, as well as with the white stone facing, compositionally will complete the new square for the future interchange with the intersection of Leninskiy Prospekt and the planned fourth transportation beltway of Moscow.

The plan of the all-purpose gymnasium was executed by the Central Military Planning Institute. Its authors were architects Yu. Krivushchenko (director), G. Sherman, A. Rodionov, V. Sukhomlinov, engineers V. Samsonov, A. Radchenko, A. Livshits, Yu. Saltykov and N. Troitskiy. The members of the

frame and the roof were developed jointly with the State Planning Research and Testing Institute of Steel Construction and Bridges.

The Military Construction Administration of Moscow is erecting the building. The installation of the frame, the roofs, the ceiling of the gymnasium and the stands has already been completed. Finishing work is being performed in the bottom floors.

Salyut Hotel

Moscow NA STROYAKH ROSSII in Russian No 7, Jul 79 pp 52-55

/Article by A. Bergel'son, director of Workshop No 3 of the Moscow Scientific Research Institute of Standard and Experimental Designing: "A Hotel for 2,020 in Troparevo"/

/Text/ Soviet and foreign guests of the 1980 Olympics, who will assemble in Moscow for the world sports forum, will be the first new settlers of the 22-story Salyut Hotel of the Moscow City Council for Tourism and Excursions of the Moscow City Council of Trade Unions, which is located in one of the rayons of the southwestern part of Moscow.

The hotel, which is designed to accommodate 2,020 people, will have more than 1,230 comfortable apartments. Among them there are 444 single rooms with a floor space of 11 m^2, 776 double one-room apartments with a floor space of 14 m^2 and 12 two-room (semideluxe) apartments with a floor space of 27.6 m^2.

In addition to the tall housing block the hotel complex includes a three-story restaurant building for the simultaneous service of 1,720 people and a stylobate section, in which a conference hall for 300, a lecture hall for 117, a billiards room, a sauna and a bar will be located. Administrative, public and technical services, a parking garage for 48 buses like the Ikarus and an indoor service yard will be located here.

The building occupies an important site with respect to urban development. Located as if "on the cape" formed by the intersection of Leninskiy and Vernadskiy prospekts, at the entrance to Moscow from the direction of Vnukovo Airport, it "crowns" the complete development of the entire residential tract with 16-story large-panel apartment houses, which are expressive in their architecture and color solution.

The site, which is complex in configuration, and the situation of the surrounding housing system governed the volumetric and spatial solution of the complex, the picturesqueness of its plan and the sense of rhythm of the facades. The slope of the topography from Leninskiy Prospekt in the direction of Vernadskiy Prospekt by 8 m dictated the expediency of building stylobates as viewed from the main facade and the courtyard facade, in

front of the restaurant, the volumes of which, being inscribed "sculpturally" in the topography, afforded an opportunity to organize convenient accesses and entrances to the building at the levels of three floors--the lower and upper ground floors and the first floor of the main building--as well as to use the underground space effectively. Architecturally the stylobates serve as the foundation for the entire structure.

The tall panel hotel living block consists of a central nucleus and two wings, each in the form of a sheer, which are located parallel to Vernadskiy and Leninskiy prospekts. Service premises for the occupants--an information, travel and excursion bureau, a rental center, a storage room and others--take up the two ground floors and the first floor.

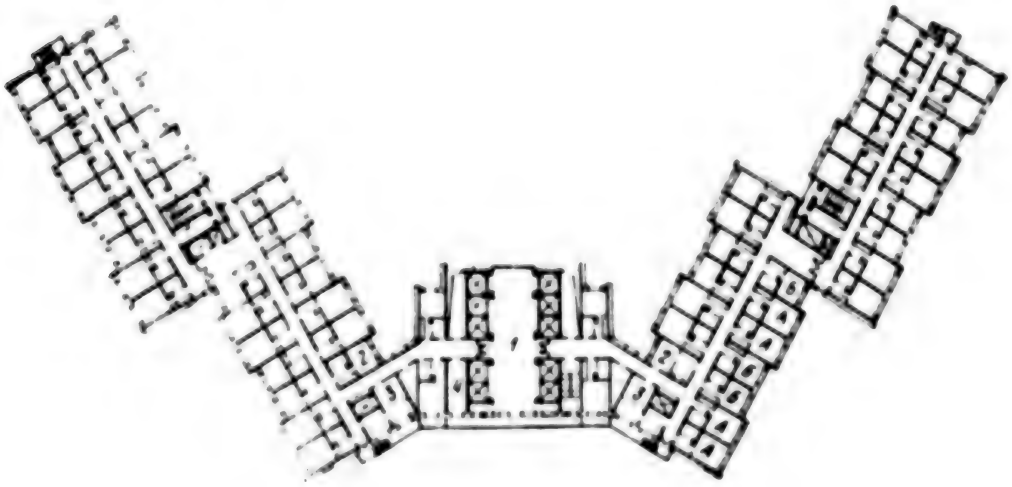
General Appearance of the Tall Salyut Hotel for 2,020 People in Troparevo (Perspective)

The hotel rooms, which are equipped with balanced ventilation, modern spacious bathrooms developed specially for the hotel and built-in closets,

capacity of 1,000 kg each, which have exits onto the spacious hallways of the floors (there are four more elevators--two passenger and freight elevators and two service elevators in the wings of the tall section), are located here.

The central vestibule adjoins the two-color elevator hall on the first floor: it serves as the main "dispatch center" of the complicated complex. All types of organization of the greeting and service of guests using an automated control system are envisaged here; there are a group of doormen, a post office, a savings bank, souvenir shops, barber shops and hairdressers. At the ends of the vestibule two large staircases, which lead to the public premises for the guests, which are located in the stylobate, have been harmoniously added to the interior.

A three-story restaurant block in the form of a pentagon on the level of a main staircase in the center, which has skylighting through a band of windows along the perimeter of the skylight, adjoins the tall building from the direction of the space within the city block. A vestibule with a cloakroom for 1,600, a small dining hall for 140 and a banquet hall for 100, a fast service bar and a refreshment counter are located on the first floor. They are all on the same level as the elevator hall and the main vestibule of the hotel and are a suite of rooms.



Plan of a Standard Floor of the Tall Salyut Hotel Complex:
А--double room; Б--single room; 1--elevator hall; 2--cleaning rooms; 3--linen rooms; 4--stock rooms.

The broad semicircular flights of stairs with white marble steps lead the guests to the dining halls on the second and third floors. Although each is designed for 700 people, it will be quite comfortable in them--four

decorative sculpture compositions in each hall divide it into five parts, places for a platform and dancing floors are provided.

The separation of the restaurant services from the surrounding housing development is achieved by the construction in the stylobate, on the restaurant side, of an indoor service yard. Here there are convenient approaches for freight trucks, platforms for unloading products, warehouses, rooms for packing materials, a transformer substation, the hotel repair workshops and the central telephone exchange.

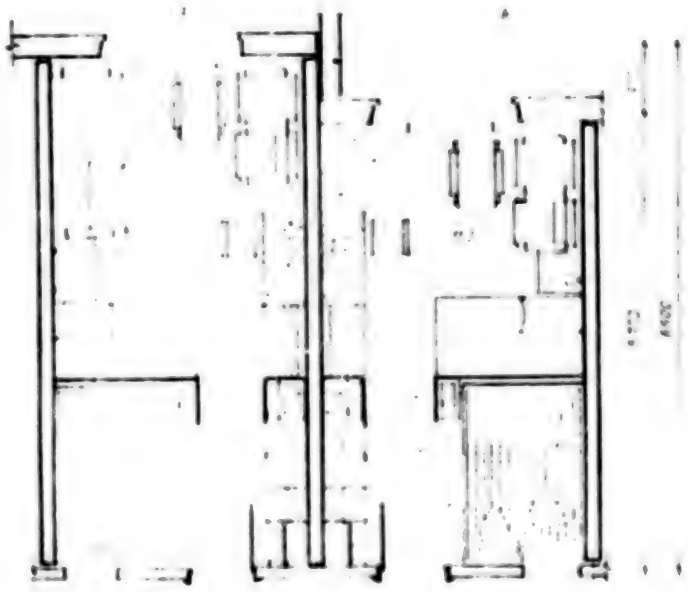
There are another two ground floors under the first floor of the restaurant, just as in the tall building. According to the topographic conditions of the site on the western side they are completely above ground, on the other, eastern side they are underground. The production shops, service and administrative premises of the restaurant, a dining room for the personnel which accommodates 100 and the Kulinariya Store are located in the above-ground section; the refrigerating rooms, the storerooms for products, the ventilation rooms and other technical services are located in the underground section.

For the first time in the practice of domestic construction a tall hotel is being built in large-panel constructions. Its residential building is made from vibration-rolled panels on the basis of the Moscow Uniform Catalog, which was drawn up for mass housing construction. The height of a floor is 2.8 m. The supporting members are internal transverse and longitudinal reinforced concrete bulkhead panels 180 mm thick, which in combination with 140-mm thick roofing panels, which are the size of a room, ensure the spatial rigidity of the building. This made it possible to reject the construction of special monolithic concrete walls for stability, which are usually made in tall frame structures. Hinged keramzit two-module panels 320 mm thick were used for the outside walls.

Advanced design decisions of the connecting units of the panels, which were verified by the practice of building apartment houses with a larger number of floors than usual, were used in the building. The resting of the plates of the floors on the supporting panels of the internal walls was designed in the form of a platform joint. Particular importance is ascribed to the horizontal joint of the outside wall panels as a rain barrier.

The adopted structural spacing of the living section has in the longitudinal direction a module of supporting walls of 3.6 m with the length of the plates of the floors of a room--5.7 and 6.6 m--respectively for a single and double room. Good proportions of the hotel room, its convenient layout and the free location of the furniture are ensured with these parameters.

The premises of the complex, which require large spans--the vestibule, the restaurant, the stylobate section--are made with frame constructions and exceed the dimensions of the housing building.



Plans of Standard Rooms: A--one-room double; Б--one-room single

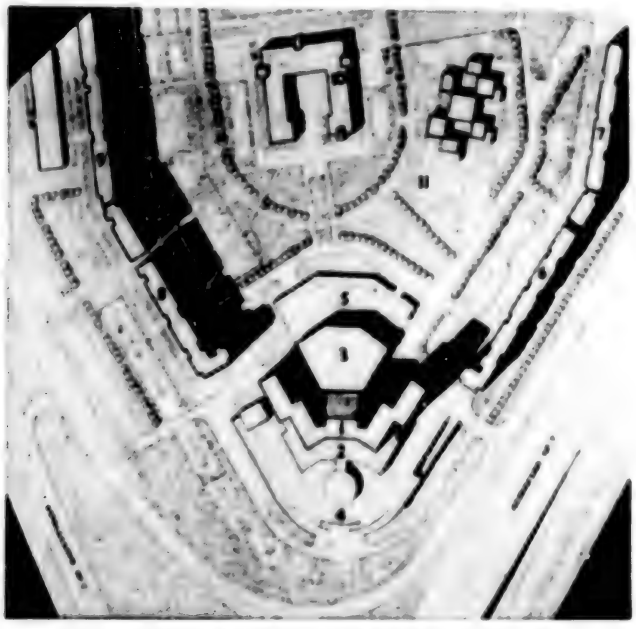
The furnishing of the tall panel building with modern types of engineering equipment--automatic control, alarm, communications, fire extinguishing and dust removal systems, high-speed elevators, television and a radio broadcast system, the latest technology and the mechanization of many processes of hotel management--required new solutions which do not have analogs in construction practice.

The finishing of the interiors of the living section was decided with allowance for their functional purpose. The largest amount of finishing work has to be done here. Thus, the walls of the rooms are being covered with a self-sticking film, while the walls of the corridors and halls are being covered with polyvinvyl acetate paints. The floors have carpets which are being laid on underlayment directly over the plates of the spans with a preliminary smoothing spackling of the concrete surfaces. The ceilings are being finished in imitation of "shagreen."

The approach is different in the solution of the interiors of the public premises--the vestibules, the elevator hall of the first floor, the dining halls, the auditoriums and the recreation areas. The facing of the walls and columns with marble, mahagony and decorative aluminum items and monumental artistic works being done by the combines of the Moscow Department of the Artistic Fund are being used extensively in them.

The architecture of the hotel complex is unique: the panel system of the tall section and the frame plan of the restaurant block, the peculiarities

of the topography of the site and the monumental treatment of the stylobate determined the nature of the facades, which are rich in active plasticity, light and shade, the emphasized vertical articulations of the wings and the horizontal bands in the central section. A volumetric composition 14 m high, which includes the letters of the name of the Salyut Hotel, crowns the building.



Plan of the Development of Block No 45 in Troparevo: 1--tall building; 2--hotel vestibule; 3--restaurant; 4--stylobate in front of the main facade; 5--stylobate in front of the restaurant; 6, 7, 8, 9--16-story apartment buildings; 10--general educational school; 11--children's pre-school institution.

The surfaces of the outside panels were finished under plant conditions with durable compositions on the basis of organosilicon compounds--enamels like KO-174. The base of the main facade of the hotel is faced with natural stone. The walls of the stylobate are finished with granite "in imitation of a fur coat" in combination with precast parts made of concrete. Some surfaces of the facades are faced with limestone slabs.

The plan of the hotel complex was drawn up by a collective of authors of the Moscow Scientific Research Institute of Standard and Experimental

Designing and the Prokatdetal' Scientific Production Association. The authors are architects A. Samsonov, A. Bergel'son, A. Zobnin, V. Rossikhin; design engineers of the Moscow Scientific Research Institute of Standard and Experimental Designing V. Shul'kin, I. Grinshpun, L. Konovalova; engineers of the Prokatdetal' Scientific Production Association A. Birger, L. Chubarov and R. Bezukladnikov.

General contracting organizations--the Prokatdetal' Scientific Production Association, the Mosfundamentstroy-8 Trust of the Moscow State Association of Large-Panel House Building of the Order of Lenin Main Administration for Housing and Civil Engineering Construction in Moscow City--are carrying out the construction of the hotel complex. At present the erection of the hotel building has been completed and the finishing operations are being performed.

7807
CSO: 1821

COMPREHENSIVE REQUIREMENTS FOR CITY PLANNING CITED

Odesskaya Oblast City Master Plans

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 7, Jul 1979 pp 6-7

[Article by S. Ye. Serzhantov, Chief, Odesskaya Oblast Division on Construction and Architecture Affairs: "Problems of Implementation of the Master Plans of Cities in Odesskaya Oblast"]

[Text] In Odesskaya Oblast there are five cities of oblast subordination, 10 of rayon subordination, and 30 urban-type communities, in which reside approximately 62% of the oblast's population.

The existence of master plans and detailed site layouts developed for almost all cities, towns and urban-type communities, as well as firm monitoring of construction site selection have promoted site development of maximum efficiency.

All preliminary architectural designs and site layouts are examined and approved by the oblast division. Selection of construction sites is one of the main items in discussing current operations at conferences and sessions of local Soviets.

In connection with the construction of large industrial complexes in the Grigor'yevskiy Liman area, in Il'ichevsk, Balta and other cities, particular attention is focused on improving the architectural appearance of industrial areas. On the instructions of the oblast division, plans for orderly development of industrial zones in cities with intensive industrial construction have been elaborated.

Qualitative changes have also taken place in large-scale housing construction. Sixteen-story buildings are being constructed with the slipform continuous formwork technique and in a large-panel variant, plus series 26 2-4 story buildings for small towns. The siting of housing and municipal construction on the basis of approved site layout plans has become more purposeful and efficient.

Last year the oblast division drew up proposals for utilization of undesirable agricultural acreage for toiler recreational facilities, and in particular, construction of a large complex of Pioneer camps, accommodating 4000 children, in the resort locality of Sychavka, and a recreation complex accommodating 3200 vacationers at the Sanzheyka-Gribovka health resort.

Measures were adopted to improve quality of construction by means of regular inspections, issuing of guidelines, and imposition of fines, which in the final analysis helped improve control over implementation of master plans and PDP [detailed site layouts]. Considerable efforts were directed toward ensuring that principal tasks in the area of urban development are carried out in close contact with Ukrainian SSR Gosstroy and the republic's design and scientific research institutes.

At the same time, with growth in construction volume, difficulties experienced by local architectural entities became more appreciable.

In small towns and communities it is not always possible to implement the requirements specified in master plans and PDP. The main reason for this is the irreversible process of their premature obsolescence due to a lack of conformity between planning and design solutions and practical capability to implement them. The master plans of 40 cities, towns and communities in this oblast were prepared more than 5-10 years ago, and as a rule they assign valuable arable land to future urban expansion.

We have now taken steps to prepare area zoning plans as well as draft plans for regulation of industrial zones of cities with intensive growth. There is a need, however, for Ukrainian SSR Gosstroy to resolve at the earliest possible time the question of revising 18 master plans drawn up prior to 1970.

All master plans and PDP specify renovation of already developed areas with construction of 4-9 story apartment buildings which, aside from the requirements of urban development, is dictated by the necessity of preserving arable land. And yet only 12 of 45 cities, towns and communities contain centralized sewer systems, which creates considerable difficulties in implementing master plans.

In almost all small towns, in spite of measures being taken, comprehensive development of microregions and civic centers is being indefinitely postponed for all practical purposes due to a small volume of construction, while the PDP prepared for them are becoming hopelessly outdated and are unable to serve as a guide in selecting construction sites and settling questions of cooperative funding for the construction of main service and utility lines.

It is true that in view of expansion of the functions of the oblast executive committee UKS [Capital Construction Administration], the question of cooperative funding is being partially resolved. However, a general designer is still not being designated for designing small housing-municipal

facilities (especially in small towns), which leads to diminished quality of design, engenders a lack of responsibility, and as a rule unwarrantedly simplifies or entirely prevents implementation of the concepts incorporated in master plans and PDP.

Similar difficulties arise in development of sites designated for toiler medical care and recreation. In Odesskaya Oblast there are many estuaries and lakes, plus more than 200 kilometers of Black Sea coastline.

In spite of a sufficient number of construction organizations, however, we did not succeed in building a single large health and recreation complex, and the main reason for this, just as in small towns, lies in the lack of a single unified client organization.

On the other hand enterprises and organizations, with the support of corresponding ministries and agencies, request establishment of temporary recreation facilities on the seashore, motivating the request by claiming a lack of adequate funding and a contractor construction organization.

Obviously at the present time, until the creation of conditions for building large health resort-sanatorium complexes, permission should be granted to establish temporary recreational facilities at least on the sites of future construction of health resorts of local significance, with the manpower and resources of individual enterprises in conformity with design-planning documentation adopted in coordination with the oblast executive committee.

Of particular importance are problems of implementation of Odessa's master plan, and particularly the city's outward growth, renovation of existing developed areas, establishment of a center and recreational sites, and expansion and improvement of construction industry facilities.

Odessa's present master plan, which was ratified in 1966, was prepared prior to passage of the new land use laws and regulations on the procedure of condemning and demolishing old buildings which have lived beyond their useful life.

The rate of actual urban growth needs has greatly outstripped control figures. Several years ago the city's population passed 1 million (as compared with a population of 980,000 persons projected for the plan-covered period).

All this leads to the conclusion that the development of Odessa's diversified production, transport and recreation functions cannot be achieved without considering the questions pertaining to formation of the Odessa metropolitan area as a whole. It would seem advisable to study the interlinked growth of Odessa, Il'ichevsk, and the urban-type community of Yuzhnoye, which in the future may merge into a single territorial-production complex.

In order to bring housing up to the requirements of Odessa's current population on the basis of standard living space figures, it will be necessary to add from 4 to 5 thousand hectares of land, while this figure will increase

substantially when we figure in future population growth. Finding this land constitutes an extremely critical problem, in view of the fact that the city is surrounded by valuable agricultural land. Since the present master plan was drafted, prospects for the city's growth in a southwesterly direction have worsened, in connection with the impossibility of removing a number of important installations from that area. Nor is there any realistic possibility of acquiring in the near future irrigated fields for housing construction, which would make it possible for the city to expand northward.

In connection with this we are fully in agreement with the opinion of the planners at Giprograd, who are working out the technical-economic substantiations for a new master plan, on the necessity of making a thorough and comprehensive comparison of different possible city growth variants. It is possible that, alongside radical renovation of old districts and partial urban growth on land which is presently in agricultural use, we should proceed to develop coastal sites by landfill, while rigorously maintaining environmental protection standards.

We must note the unfavorable state of affairs as regards renovation and regulation of Odessa's industrial development. While the Selitebnaya area has been almost totally provided with detailed site layouts, none have been provided for the industrial districts. Not one industrial rayon has a general construction organization, while additional difficulties in construction of general area facilities, service and utility lines are being created due to ministerial obstacles.

We feel that it is high time to add to the schedule of Design Institute No 3 projects pertaining to the regulation and coordination of existing industrial concentrations, without which it will be impossible to resolve the problems of the city's future growth.

Acquiring particular significance is the problem of renovation of downtown Odessa, which is distinguished by architectural individuality and a unity of style. In view of this, renovation should be performed knowledgeably and with professional tact, in order not to disrupt the integrity of the ensemble. This does not mean that all existing buildings should be preserved, but they cannot be replaced without designing new buildings on an individual basis. Restoration efforts should be conducted on a broad scale and on a high level, which will ensure that new functional qualities will be given to the old buildings, without altering the downtown district's architectural countenance.

Odessa is one of the country's most important vacation centers. However, the further existence and growth of the majority of Odessa's health resort facilities is directly contrary to the interests of organization of the recreation not only of hundreds of thousands of Odessans but also the almost half million vacationers to arrive in the summer.

During the years in which the current master plan has been in existence, we have made practically no progress toward implementation of its principal points

pertaining to utilization of recreational areas. Therefore in the new master plan we should approach in a more realistic manner resolution of the problems of removing and respecializing existing medical and health resort facilities, without abandoning the general emphasis on primary development of daily and short-period recreation both of Odessans and visitors from elsewhere, the numbers of which are increasing year by year.

Implementation of master plans is a laborious and lengthy process in urban planning and development. One of the principal reasons for the arising need for certain departures from the ideas incorporated in master plans is the existence of deficiencies in planning productive resources, which fails to take into consideration harmonious growth and development of medium-size and small cities and towns, as a result of which an excessive and at times unwarranted concentration of production in the oblast capital leads to "freezing" of the urban growth base in the other cities, towns and urban-type communities.

Therefore there is an acute need today as never before to ensure that planning of the growth and development of productive resources corresponds to the vital interests of urban growth and development, whereby the growth of our cities would take place on a planned basis, while urban planning proper, as the theory and practice of planning the growth of our cities, would become a genuine science.

 UDC: 711.4(575.1)

Typology of Uzbekistan's Cities

Tashkent STROITEL'STVO I ARKHITEKTURA UZBEKISTANA in Russian No 7, Jul 79 pp 27-29

[Article by Kh. K. Tursunov et al: "Comprehensive Typology of the Cities of Uzbekistan"]

[Text] Problems of classification and typology of cities constitute a fairly thoroughly-elaborated area of Soviet geourban studies. A major contribution toward methodology, method of classification and synthetic typology of the cities of the USSR has been made by prominent Soviet urban planners and geographers V. G. Davidovich, O. A. Konstantinov, E. V. Knobel'sdorf, B. S. Khorev and others. They have defined the main directions of further refinement of classification of the cities of the Soviet Union and have advanced the idea of creating a comprehensive "universal" typology of cities, with the broadest possible quantitative substantiation, which is of great practical and theoretical significance. Solution of this problem is impossible without detailed regional investigations of the systems of urban settlements of the various regions and union republics.

With the objective of determining present and future urban population development trends taking into account the above-indicated positions, we elaborated a classification and typology of the cities, towns and urban communities of the Fergana Valley, and subsequently a functional-genetic typology of the cities and towns of Uzbekistan on the basis of an analysis of considerable statistical-economic, geographic, historical and other materials.

In this article we shall present a typology of the cities of the Uzbek SSR, which is based on a combination of the principal classification criteria -- economic function and genesis, with a broader quantitative substantiation. Of great typological significance was the employment, alongside economic indices, of a large system of contemporary demographic parameters of development of cities.

Following are the principal quantitative criteria of the comprehensive typology of cities of the Uzbek SSR which we have developed:

size (in terms of population) of the city, with subdivision into very large (population above 1 million), large (population 100,000 and more), medium (20-100 thousand) and small cities (less than 20,000)*;

structure of employment of the economically active population in the economy, broken down by area of material production, including industry and transportation, industry alone, agriculture, as well as service branches serving production and the public;

birth rate, mortality rate, and natural population growth increment;

migration growth increment and migration turnover indices;

average annual population growth rate;

percentage share of migration in total population growth;

dynamics of average population of a city typological group.

We divided all the cities of Uzbekistan into four types on the basis of functional criteria. We took into consideration thereby the administrative-organizational role of cities in this republic, as well as the degree and character of their industrial development.

Proceeding from this position, we have designated the following functional types of cities in the Uzbek SSR:

oblast and other important regional economic centers. This group includes large cities with a well-developed industry of broad and narrow specialization, as well as medium-size cities with a growing broad-specialization industry;

industrial centers;

small industrial cities of narrow specialization;

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* This is the classification of cities by size which is employed in economic geography

local administrative and organizational-economic centers of agricultural areas with little-developed industry.

Key to figure on preceding page:

1. The numbers on the map indicate the following
2. Legend
3. Cities with population (in thousands)
4. Above
5. Below
6. Very large, multifunction capital city, important industrial, transportation, cultural, scientific and administrative-political center
7. Large cities -- oblast and other important regional economic centers with developed industry of broad specialization
8. Large cities -- important regional economic centers with developed industry of narrow specialization
9. Medium cities -- oblast centers with relatively poorly-developed industry of broad specialization
10. Cities -- industrial centers
11. Small industrial cities of narrow specialization
12. Cities -- local organizational-economic and administrative centers of agricultural areas with little-developed industry
13. Old cities which arose as trade-distribution administrative-political centers on the site of large villages
14. New cities which arose as local administrative centers of agricultural areas, for the most part on the site of old settlements
15. New cities which arose as narrow-specialization industrial cities, for the most part on new sites
16. Samarkand
17. Tashkent
18. Namangan
19. Fergana
20. Termez
21. Urgench
22. Chirchik
23. Bukhara
24. Navoi
25. Nukus
26. Kokand
27. Khiva

Cities of narrow industrial specialization include communities in the industrial structure of which more than 50% of gross output is produced by the principal branch. In order to create a clear typological configuration, narrow-specialization industrial centers and small industrial cities were not broken down in detail by specialization. Within this group there are mining industry and power engineering industry centers, transportation hubs, etc. Such detailing is entirely possible and necessary for classification

and typology of the cities of the Soviet Union as a whole and its large economic regions. In a typological configuration of the cities of a union republic with an insufficiently broad array of narrow-specialization cities, such as the Uzbek SSR, this creates an excessive load and does not promote the formation of compact groups of cities.

We divided the cities of Uzbekistan into two large groups on the basis of genetic criteria -- old and new, with further breakdown by cause and place of origination. The new group contains urban communities which acquired the legal status of city during the years of Soviet rule. Cause of origination also includes the concept of the economic content of a community at the moment of transformation into a city. When comparing the reasons for the emergence of a city with its contemporary functional type in our proposed typology, one can trace a city's development from the moment of its birth up to the present time. In Uzbekistan, for example, some cities which originated as narrow-specialization industrial communities were transformed into large industrial centers of broad specialization (Angren, Almalyk, Bekabad, Navoi, Chirchik, and others). Many urban communities in this group did not increase the complexity of their initial economic content and today are small industrial cities with narrow specialization (Kuvasay, Muynak, Takhiatash, etc).

Due to substantial development of administrative-organizational, cultural-educational and scientific functions, one notes in Tashkent a comparatively small percentage share of persons employed in the area of material production, although the actual number of persons employed in this area is fairly large. For such a large city as Tashkent, however, which in fact is a regional center in Central Asia, the level of employment in the nonproduction sectors of the economy, especially in the area of services for the general public, should be considered insufficient. This applies not only to Tashkent but essentially to all cities in the republic.

Large oblast administrative and regional centers are in a somewhat better situation in this respect. However, the structure of employment of the economically active population in these cities is in large measure identical to that of the capital. In medium-size oblast centers the percentage share of population employed in industry is very low (less than one fourth of the economically active population). These cities are assigned to the group of communities with a relatively little-developed industry. On this criterion they are similar to the group of cities of local organizational-economic, administrative centers of agricultural areas, in which one also observes a very low employment in industry.

A high level of employment in the area of material production is characteristic of the republic's industrial centers (three fourths of the economically active population). Development of the nonproduction sphere is extremely important for this group, and especially for small industrial cities.

Cities which arose as local administrative centers of agricultural areas and administrative-organizational centers of oblast status continue today playing a primary role in the system of this republic's urban communities, constituting

centers of administrative oblasts and rayons. Gradually, however, industry and cultural-personal services for the general public are developing in these cities, and thus their functional structure is becoming somewhat more complex. Characteristic of these groups of cities is a substantial percentage share of employment of the economically active population in agriculture.

Of all of the designated genetic groups, the old cities which emerged as trade-distribution and administrative-political centers are those which have increased to the greatest degree their original production specialization during the years of socialist development (Tashkent, Fergana, Samarkand, Andizhan, etc). At the present time they perform, alongside administrative-economic functions, important industrial, transport-distribution, cultural-educational and other functions as well. These cities, together with the oblast centers of the group of new cities, today are the main centers of Uzbekistan's population growth, for the principal instruments of the republic's socioeconomic, organizational-economic and political development are concentrated in them. This role and their importance in the system of Uzbekistan's population development will be fully maintained.

Population natural reproduction and migration indices are highly characteristic typological attributes of the cities of Uzbekistan. Each of the specified types of cities possesses specific demographic indices, which reflect not only a city's functional essence but also the level of its socioeconomic development.

Tashkent, the republic's capital, which occupies a special position within the system of population development and the entire socioeconomic and political structure of the Uzbek SSR, is distinguished by the lowest birth rate, natural population growth increment, and the highest percentage share of migration in the republic's overall population growth.

The cities of the fifth typological group, which contains for the most part administrative centers of the republic's agricultural areas, constitute another "demographic pole"of Uzbekistan's urban network. These are for the most part small, single-nationality cities with parameters of natural reproduction which are identical with or close to the rural population. In connection with this, the percentage share of migration in the overall population growth of the cities of this type is also insignificantly small, averaging 6.8% for the group. High natural population movement indices and a low percentage share of migration in population growth are also characteristic of medium oblast center cities with little-developed industry, as well as small industrial cities of narrow specialization.

A low level of population reproduction and a correspondingly relatively high percentage of migration in total population growth (other than Tashkent) is noted in large cities of combined development and industrial centers with a multiethnic population.

A higher and more proportional rate of growth for some of the types of cities in this republic is needed in the future, on a base of accelerated growth of industry. The result should be requisite transformations of one type of city

into another, and a continuous, gradual transition by cities from lower to higher categories by level of socioeconomic development, which will also be accompanied by the addition of new cities to the urban network, cities transformed from urban settlements and rural communities.

Determination of the further paths of development of the designated types, and particularly the individual urban communities should not be viewed in an isolated manner. These questions must be resolved in a comprehensive manner, proceeding from the general tasks of socioeconomic development of the Uzbek SSR, as well as the problems of future development of urbanization and a uniform system of population growth and distribution in this republic.

3024
CSO: 1821

RSFSR GOSSTROY SESSION REPORTED

Moscow NA STROYKAKH ROSSII in Russian No 6, Jun 79 pp 58-59

[Text] State of Affairs in the Drafting of Regional Land-Use Schemes and Projects

The committee took note that 25 project planning institutes subordinate to RSFSR Gosstroy, Gosgrazhdanstroy [State Committee for Public Works Construction and Architecture] and executive committees of local Soviets of People's Deputies are doing specific work to compile regional land-use (rayonnaya planirovka) schemes and projects in the republic. Work is also being done toward their approval and implementation. As of 1 January 1979 61 autonomous republics, krays and oblasts of RSFSR had been furnished comprehensive schemes. The drafting of schemes for all the autonomous republics and oblasts of the Nonchernozem Zone of RSFSR was completed 2 years ago. In all 58 schemes have been approved, as well as projects for 182 of the republic's administrative rayons. New schemes have been drafted for 12 of the 18 ASSR's, krays and oblasts located in the regions of Siberia and the Far East. The rest will be completed in 1979 and 1980.

Comprehensive regional land-use projects have been adopted for 286 out of the 1,793 administrative rayons, including 220 of the 675 rayons in the Nonchernozem Zone of RSFSR.

The committee (RSFSR Gosstroy) commended the work of the regional land-use and industrial parks division in organizing the drafting and consideration of regional land-use schemes and projects for all oblasts and autonomous republics of the Nonchernozem Zone of RSFSR and the most rapidly developing regions of Siberia and the Far East (master regional land-use scheme for the zone affected by the BAM [Baykal-Amur Trunk Rail Line], the regional land-use scheme of Krasnoyarskiy and Khabarovskiy krays and Amurskaya, Irkutskaya and Kemerovskaya oblasts); in mastering the methods of drafting comprehensive regional land-use projects for administrative rayons and groups of rayons; and on making the schemes and projects more comprehensive.

Yet there are shortcomings in organization of the work of compiling the schemes and charts and in carrying out the measures they provide for. To be specific, no procedure has been established for furnishing clients and project planning institutes working on regional land-use schemes and projects the necessary initial materials on the long-range development and location of the productive forces and other data indispensable to project planning; there is no regulation on the place of land-use planning in the system of nationwide multiannual planning; there is no regulation defining the strategies and methods for carrying out the decisions provided for in regional land-use schemes and projects; the present instruction on drafting regional land-use schemes and projects, SN [Construction Norm] 446-72 does not include sections on the regional land-use projects of administrative rayons, on the cluster system of settlement, nor on civil defense; a method has not been fully worked out for drafting regional land-use schemes and projects providing greater comprehensiveness and incorporation of new sections (systems analysis, mathematical-economic model building, introduction of computers, and effectiveness of project proposals); there are no methodological guidelines for drafting many sections of the regional land-use schemes and projects nor for working out consolidated standard indicators on consumption of heat and wage expenditures in agriculture, and they are also lacking concerning the project planning of warehouse operations, the organization of construction, and so on; sufficient use is not being made of land-use decisions and recommendations at the local level in the location, project planning and construction of economic facilities (Astrakhanskaya, Belgorodskaya, Kurskaya, Ivanovskaya, Smolenskaya and Voronezhskaya oblasts); the quality of certain regional land-use schemes and projects prepared by the institutes of Gor'kovgrazhdanproyekt, Kaliningrazhdanproyekt and Orelgiprogorsel'stroy is low; sufficient budget appropriations are not being made for surveying required in project planning (about 2.0 million rubles per year, when 3.5-4.0 million rubles are needed), which is bringing about a reduction in the number of project planners and elimination of a number of subdivisions in project planning institutes concerned with drafting regional land-use schemes and projects, and this in turn is jeopardizing punctual completion of work on regional land-use planning for the Nonchernozem Zone of RSFSR and the regions of Siberia and the Far East.

RSFSR Gosstroy called upon USSR Gosplan, USSR Gosstroy, Gosgrazhdanstroy and USSR Ministry of Higher and Secondary Specialized Education to take steps toward further improvement of the quality of project planning work and improvement of the methods of drafting regional land-use schemes and projects.

On Fulfillment of 1978 Targets for Raising the Technical Level of Construction by Glavleningradstroy, Glavmosoblstroy and Glavmosoblstroymaterialy

The committee took up the question of fulfillment of 1978 assignments of the RSFSR State Plan for Economic and Social Development under the section "Development of Science and Technology in the Construction Industry and the Building Materials Industry" and measures to ensure fulfillment of this section of the plan for 1979 by Glavleningradstroy, Glavmosoblstroy and Glavmosoblstroymaterialy. It was noted that these organizations have done

definite work to raise the technical level of construction and its efficiency and quality. Most assignments under this section were fulfilled and overfulfilled.

But Glavleningradstroy failed to fulfill 6 of the 31 targets, Glavmosoblstroy failed on 10 out of 26, and Glavmosoblstroymaterialy failed to fulfill 5 out of 17. This principally pertains to raising the level of fully prefabricated construction, delivery for occupancy of large-panel apartment buildings and buildings for cultural and consumer services, manufacture of lightweight-concrete fabrications and products, etc. The situation is particularly bad with raising the level of fully prefabricated construction in organizations subordinate to the Leningrad Gorispolkom. Glavmosoblstroymaterialy has not organized the production of panels from keramzit-perlite concrete, nor has it brought the quality of perlite-phosphogel sheets up to the necessary standards, the assignment for the manufacture of composite sheets was underfulfilled, and the production of reinforced-concrete fabrications using impact (udarnaya) technology is developing at a slow pace. Glavmosoblstroymaterialy is not fulfilling plans for the output of these progressive fabrications.

It was deemed indispensable that Glavleningradstroy, Glavmosoblstroy and Glavmosoblstroymaterialy draft and implement measures aimed not only at fulfillment of the 1979 plan, but also at making up the lag that occurred in 1978.

Results of State Expert Evaluation of Project Plans by RSFSR Gosstroy in 1978

The Main Administration for State Evaluation of Project Plans of RSFSR Gosstroy in 1978 examined 499 project plans and TEO's [technical-and-economic substantiation or feasibility study] for construction of industrial facilities, residential and public buildings, utility installations, roads, bridges, and other projects with a total estimated construction cost of 4,269.64 million rubles, including 178 projects for construction of new enterprises, buildings and engineering installations and for reconstruction and expansion of existing ones, 125 subject to revision because of a change in the figures previously adopted, and 140 on the basis of spot checks. In all 265 project plans and TEO's totaling 2,660.93 million rubles were recommended for approval.

The expert evaluation reduced the estimated construction cost by 71.72 million rubles (3.5 percent of the declared cost) while at the same time improving technical-and-economic indicators, and the total change (reduction plus increase) was 176.2 million rubles (8.7 percent). In the TEO's recommended for approval the total reduction of the declared calculated cost was 37.75 million rubles (5.0 percent).

It was recommended that in expert evaluation of project plans and cost estimates the Main Administration for State Expert Evaluation of Project Plans

turn its attention to increasing the efficiency of capital investments, application of scientific-technical advances, use of progressive fabrications and highly productive equipment, economies, reduction of materials intensiveness and labor intensiveness, and reduction of the need for energy consumption. Priority should be given to examination of project plans for construction of facilities in the BAM zone and the Nonchernozem Zone of RSFSR. In the examination of project plans for buildings and installations under construction in Moscow it is indispensable to be highly exacting concerning the quality of architectural designs and layouts, thereby furthering the capital's transformation into a model communist city.

The administration was also ordered to continue work on methods with the subdivisions for expert evaluation of RSFSR ministries and departments, councils of ministers of autonomous republics, and kray and oblast ispolkoms aimed at performance of the tasks arising out of the decisions of the 25th CPSU Congress and subsequent plenums of the CPSU Central Committee.

Approval of Standard Designs

RSFSR Gosstroy approved the standard design (in the stage of the engineering plan) drafted by the institute Giprokommunstroy [RSFSR State Institute for Planning Construction Projects of the Utilities and Municipal Services] and cleared with the RSFSR Ministry of Housing and Public Works Construction of a combined baths and laundry facility to accommodate 100 persons and 1,000 kg of laundry per shift for construction in the climatic subregions IA, IC and IE, including cities and settlements on the BAM route, with ordinary [geological] conditions and assumed temperatures of -30 to -40° C (principal variant) and -50° C. The structure of the building has a volume of 19,771 cubic meters, and the total estimated construction cost came out to 889,340 rubles, including 803,590 rubles of construction and installation work.

A standard design prepared by the Design Office for Reinforced Concrete (in the stage of engineering plan and working drawings) was also approved for a 4-story 12-apartment front-to-back module containing Model 2B-3B-3B (left and right) apartments using Series 135 structural elements for construction in rural localities with normal geological conditions in climatic subregion IC and climatic regions II and III. The volume of the overall structure is 3,129.06 cubic meters and the total estimated cost 68,070 rubles.

Effective Structural Elements for Large-Scale Construction

The Section for Housing and Public Works Construction of the Scientific-Technical Council of RSFSR Gosstroy has examined materials on the project "Development and Adoption of Effective Reinforcement of Panels of Interior Walls and Partitions for Large-Scale Large-Panel Construction Using Construction in Zhukovskiy as an Example." This project was submitted by the Central Scientific Research Planning Institute of Standard and Experimental Planning of Housing, the State Institute for the Planning of the Manufacture of Construction Machinery and Glavmosoblstroy as an entry for the prize of

the USSR Council of Ministers for outstanding designs and for construction based on those designs. The committee supported its submittal.

RSFSR Gosstroy Honorary Certificates Awarded

Honorary certificates of RSFSR Gosstroy were awarded to Comrades S. D. Fradkin, chief specialist of the regional land-use planning and industrial parks division of RSFSR Gosstroy; I. N. Rozhkova, chief architect of Magnitogorsk; V. I. Fomenkov, chief engineer of the Pskov Affiliate of the institute Sevzapgiprosel'khozstroy [Northwestern All-Union State Institute for the Design of Industrial Buildings and Installations for Agriculture]; V. A. Fil'chenko, head of the Ul'yanovsk Combined Division of the Design Office for Reinforced Concrete of RSFSR Gosstroy; A. V. Litvinenko, chief technologist of the Northwest Combined Division of the Design Office for Reinforced Concrete of RSFSR Gosstroy; and V. V. Potekhin, senior geodesic engineer of the Architectural and Layout Administration of Leningradskaya Oblast Ispolkom.

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ARCHITECTURE OF KIRGIZ CITIES CRITICIZED

Frunze SOVETSKAYA KIRGIZIYA in Russian 31 Aug 79 p 2

[Article by K. Aykulov, Chief of the Integrated Section for Urban Planning and Typology of Housing and Social Buildings of the TashZNIIEP [Tashkent Zonal Scientific-Research Institute of Standard and Experimental Design] in the City of Frunze: "A City Should Have Its Own Look"]

[Text] In the last 3 years alone 300,000 people in Kirgiziya have obtained new apartments or have improved their housing conditions. This figure speaks eloquently about the scale of housing construction in the republic. And such a magnitude is compelling architects, designers and builders to see to it not only that new apartment houses are convenient and durable but also that they please the eye. For it is the new housing, not individual civic buildings, that defines a city's appearance.

In recent years appreciably more attention than before has been paid to this aspect of the matter in the republic, especially in its capital, the city of Frunze. Ensembles of apartment houses and nine-story apartment houses, respectively, are appearing, attractively and in an original manner, in eight or nine microrayons and along Sovetskaya Ulitsa of Zapad-1 Microrayon.

However, we do not have many of these successes as yet. More often something else meets the eye. The republic's cities are located in different climatic zones and at various altitudes above sea level, and they have different local topography, but they are being built up with identical housing which, moreover, often is extremely unexpressive. Let us recall Osh, Tash-Kumyr, Przheval'sk and Naryn. Can they really boast of their individual architectural character?

Sometimes it is the designers' fault. In developing designs for new housing tracts, they are little concerned about whether these tracts please people with exteriors that have their own expression. They are little concerned about the conditions of visual perception or about the use of local relief. Meanwhile, there is no detail in the design of housing rayons. Even pedestrian paths--sidewalks, trails and crossings--would increase their attractiveness if they had been thought out interestingly and

executed carefully. And each apartment house taken separately is of no small importance in the creation of an individualistic look for a city or a microrayon. Much depends here upon the quality of the standard designs and on the mixes of the series of these designs. Each such series should include apartment-house designs that have sets of apartments that differ in number of rooms and layout and have different architectural and compositional solutions for facades and for the finish work.

As of now we have four series of standard designs: the 77, 98, 105 and 106 series. They are much better than the series that the builders were using in the 1960's; however, there are extremely few of these, and, moreover, they are not being used completely by far. And this leads to city build-ups' suffering from sameness and monotony, only at a somewhat higher level.

Judge for yourself. The apartment houses of the 98, 105 and 106 series were developed for climate zone No 3, in which only 5 cities--Frunze, Tokmak, Kara-Balta, Sulyukta and Talas--are located.

If it is considered that large-panel and frame-and-panel apartment houses of the 105 and 106 series can be built only in a large city, such as, for example, in the capital, then there remains only the 98 series for all the rest. But even that is not suitable everywhere with regard to climatic conditions or to the number of stories.

The 77 series is used mainly for Oshskaya Oblast cities, which are located in climate zone No 4. It was designed only for four-story housing, and it has no four- or five-room apartments, although the percent of large families in the oblast is high.

The series of standard designs, as we see, is very small, but the builders are not striving to use even those possibilities that have been incorporated in them. Thus, out of the 28 designs for interlocking sections of the 105 series that have been developed, only 5 are being used, and of the 20 interlocking designs of the 98 series, only 6 are being used. Designs for rotary interlocking sections, without which it is difficult to achieve an expressive formation for an ensemble or rational use of urban land, are gathering dust on design-institute shelves. The construction industry is not assimilating them.

The builders are not now showing concern about the finish of apartment houses. While in the cities of Frunze and Osh they sometimes use different materials for decoration--decorative slab and natural rock--in other cities they have in their armamentarium only monochromatic plaster.

The external appearance of the cities, especially of the smaller ones, depends to a great extent also upon the quality of individual construction. As research has indicated, it is being conducted nonsystematically everywhere, without any kind of layout documentation worked out ahead of time. Catalogs of standard designs for individual houses are lacking, and the architectural and construction services of the cities cannot offer the developer anything but various obsolete designs. As a result, the architectural solution of houses is left to the builders themselves.

In our republic, where complicated seismic and geological conditions are typical, it is desirable to develop and improve monolithic housing construction. To date the total amount thereof is extremely insignificant--0.6 percent. Many circumstances indicate the attitude toward monolithic housing construction. For 7 years now a 12-story 176-unit apartment house that was developed by Kirgizgiprostroy [Kirgiz Institute for Construction Design] has been under construction. Two-story and three-story monolithic housing made of keramzit concrete that was erected on subsident soils in the city of Frunze and in the Kyzyl-Asker region at the start of the 1970's have not been studied by anyone, and no conclusions have been drawn about the use in the future of this method of construction.

Experimental construction could give the answer to how to build up our cities better. But today it is still being restricted just to checking constructional solutions.

The high seismicity hazard, the presence of unsuitable land (with large and steep slopes, with subsident soils and so on) and, finally, the high percent of large families in various cities require us to study the possibility of erecting housing of few stories (two or three) with high population density. There is experience in such a build up and it must be used.

In building housing, we should rember that it serves people not for a year or two but for decades, and even centuries. Therefore, concern about its quality and its architectural appearance must not be shelved. Apparently, it will be easier to raise the level of urban construction if the ispolkoms would take on the functions of the client and the builders would introduce Orel's "nepreryvka" [continuous planning method].

Urban planning is a complicated and integrated science. The tasks that face architects and builders are great, and great is their responsibility to present and future generations for their work.

11409
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UZBEK RURAL COOPERATIVE HOUSING CONSTRUCTION PROGRESSING

Moscow PRAVDA in Russian 5 Jul 79 p 2

[Article by V. Belen'kiy, candidate of economic sciences (Tashkent-Moscow): "Housing on the Installment Plan"]

[Text] Rural cooperative housing construction is being expanded successfully in Uzbekistan.

An important event occurred this spring in the cotton-growing Musurmanovoy family. The oldest son, Anarbay, a brigade leader of the Kolkhoz Kommunizm in Bayautskiy Rayon, Syrdar'inskaya Oblast, left his relatives' home and moved into a new and spacious house. It has four living rooms (including bedrooms), a bath, its own water heater and running water. There is a plot of 0.15 hectare in front, where a chervovodnya--a building for growing silkworms--has been built.

This house is one of the first turned over by the rural housing construction cooperative that was formed recently. The Anarbay family contributed part of the share--4,000 rubles. The remainder will be paid over a period of 20 years. This is completely within their means, since the Musurmanovoys' annual pay is 3,800 rubles.

It is pertinent to note here that the rural ZhSK's [housing construction cooperatives] have won great popularity throughout all Uzbekistan.

The peasant always strives to have his own house. And the state supports this striving. However, the amount of individual housing construction in the country has been reduced recently. Yet the savings of its inhabitants have multiplied. The causes here are various. One of the basic causes is a rise in demand for quality in housing. The kolkhoz member now wants to provide his family with city comfort--to have more rooms, to install a boiler for steam heating, to have a water line brought in, and to have in the yard good grain, storehouses, and even a garage for a personal car. Of course, houses with such conveniences are few, and one is not built without help, especially since the materials needed for one are scarce at times.

So this is where housing-construction cooperatives come to the rescue. They can arrange rather rapidly for the systematic erection of modern individual houses.

Five years ago the necessity for creating ZhSK's in the Uzbekistan countryside was dicussed. It was proposed that the republic's Ministry of Agriculture be charged with this matter. However, it soon became clear that this was not within its capabilities. In 1975 the functions of a single general contractor was vested in the state-cooperative Uzkolkhozstroy Association.

A section for housing construction cooperatives was established within Uzkolkhozstroy and the solution of questions about their activity in the association's trusts and administrations was vested in special workers. The new activity receives the active assistance of republic and local party, soviet and farm supervisors.

The housing construction cooperative that is organized in a settlement provides 30 percent of the share payments. After this, the chief of the interkolkhoz mobile mechanized column that has been assigned to this ZhSK orders the design, which first was chosen by members of the cooperative with the assistance of qualified specialists. Then the builders erect the house under the turnkey arrangement and transfer it to the owners.

The republic's gosstroy is energetically supporting development of the network of ZhSK's. A competition for the best standard design for a house for such cooperatives was held under its initiative. Not only Uzbekistan's architects and designers participated in this competition but also specialists from other Union republics. As a result, 32 of the best designs were selected. In all (counting those existing previously), the republic has at its disposal 64 model designs for individual houses that have been widely discussed locally and were approved by kolkhoz members and sovkhoz workers.

In order to encourage countryside residents to join ZhSK's, Uzkolkhozstroy reduced the cost of erecting cooperative houses by almost 10 percent and assumed part of the overhead costs. A square meter of useful space costs 150-170 rubles, and the expenditure for a four-room brick building with running water, gas, a local sewer system and subsidiary premises of various sorts (including a built-in garage) is 15,000-16,000 rubles.

It is clear now that rural cooperative-housing construction is being developed successfully in Uzbekistan. Two years ago a Minabad collective was created at Kolkhoz imeni Dimitrov in Ferganskiy Rayon, Ferganskaya Oblast. It brought 73 shareholders together. During a recent period more than 50 houses were built and another 20 were being erected. In Leninskiy Rayon, Andizhanskaya Oblast, the Yangi-Khayet ZhSK of Kolkhoz Sotsializm counted 45 housewarmings. Similar examples can be found in each oblast and in most rayons of the republic.

And here are the statistics for Uzbekistan as a whole. In 1976, when the rural ZhSK's had just appeared, 3.3 million rubles had been allocated to them for construction and installing work. Investment of 5.7 million rubles was assimilated (including expenditures for uncompleted construction), and 226 houses with a total area of 25,400 square meters were introduced. Last year it was planned to do 23.8 million rubles' worth of construction and installing work, and 26.8 million rubles were actually assimilated. Turned over to the clients were 143,000 square meters of useful space. In all, during the past 3 years 2,125 comfortable houses were erected for rural ZhSK's, the number of which in the republic is growing steadily.

Development of the ZhSK is an important means for utilizing the work savings of rural residents to solve social t[illegible]s. Previously, these funds were lying idle, but now they are being [illegible]n into circulation, bringing advantage to society and to the citizens [illegible]n the other hand, the creation of ZhSK's is strengthening order in the [illegible].dup and expansion of the housing inventory of kolkhoz and sovkhoz sett[illegible]ments and helps to establish a well thought-out urban-housing policy and to form an architectural look for the modern village.

But the development potential of such cooperatives still is not being used sufficiently. Specialists consider that the new type of construction can be increased in amount by several times. For this purpose only a few problems need to be solved.

First and, perhaps, one of the most complicated, is that of providing rural ZhSK's with constructionm materials and constructional structure. There is not enough sanitary equipment, metal, lumber and finishing materials. For rural ZhSK's do not receive an earmarking designation and, as a rule, they are relegated to last place in determining priorities in the erection of social and cultural facilities. This is why, for example, 10 cooperative houses could not be built in the normal time at Sovkhoz imeni Lenin in Bayautskiy Rayon.

There are some ways to correct the existing situation. The share of cooperative houses in the total volume of housing to be erected in the countryside can be increased. And there is more. Wide use of nonfunded local construction materials opens up substantial reserves (true, in so doing a certain reworking of designs is required). This is already being done in the republic--new brick plants are being rebuilt, expanded and erected, new constructional members are being created and scarce wood-chip structure is being replaced successfully.

Here is a discrepancy that should be eliminated. A supplement was recently introduced into the construction norms and regulations--an increase in the dimensions of one-story farmstead homes that are erected by individual builders is authorized. Such a four-room building can now have 97 square meters. But a person joining a rural ZhSK is authorized to build no more than 75-77 square meters. Why?

Much still is not clear in the organizational structure of rural ZhSK's and in their legal status. While in the city, large ZhSK's are created that have their own administration with released workers, there is none of this in the village. Probably it is more desirable to create one cooperative for several adjacent farms, or, perhaps, for all those that are located in a given rayon. It is not understood why the main part of the work of Uzkolkhozstroy is being financed by the republic's Gosbank but the erection of homes for rural ZhSK's is being financed by Stroybank. And why is this bank interested only in the timeliness of payment on the loans but not in the assimilation of these loans by the deadline?

Experience in developing rural cooperative-housing construction in Uzbekistan deserves attention and study. It is useful to apply it, taking local conditions into account of course, in, let's say, oblasts of the Nonchernozem Zone of the RSFSR, where enormous work is to be done to rebuild rural settlements, reduce the migration of the population and retain labor resources. And even in other regions of the country, as was stated in the decisions of the July 1978 CPSU Central Committee Plenum, it is necessary seriously, actively and effectively to develop rural housing construction cooperatives.

11409
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MAIN BUILDING-MATERIALS INDUSTRY DEFICIENCIES CITED

Moscow STROITEL'NAYA GAZETA in Russian 17 Aug 79 p 3

[Article by "Observer": "Overcome the Lag"]

[Text] Why breakdowns in providing construction projects with materials and structure have occurred more frequently.

The building-materials industry is developing at a rapid pace. Production technology is being improved, and many achievements of scientific and technical progress are being introduced. More than 16,500 mechanized flow lines are now operating at USSR Minstroymaterialov [Ministry of Construction Materials Industry] enterprises. This has made it possible to release about 60,000 people from heavy labor.

This year collectives of the industry's enterprises have adopted strenuous counterplans and socialist commitments and they are striving to fulfill them successfully. And more than 31,000 workers have already mastered their own personal four-year and five-year tasks. During the socialist competition, creative collaboration among collectives is being strengthened and the labor records of the industry's best producers are constantly being broken.

Large-scale socialist competition and the introduction of technical innovations and advanced work methods are bearing fruit. Many of the industry's enterprises are operating ahead of schedule. Plans for realized output for the first half of the year have been fulfilled at minstroymaterialov plants in Lithuania, Moldavia, Kirgizia and Armenia, as well as those of Glavasbest [Main Administration for the Asbestos Industry], Glavasbesttsement [Main Administration for the Asbestos-Cement Industry], Glavsantekhprom [Main Administration for the Sanitary-Engineering Equipment Industry] and of certain other agencies. Consolidating what has been achieved, they continue to increase the pace.

However, the industry as a whole has not been coping with fulfillment of the plans and socialist commitments that have been adopted for this year. In the first half of the year the plan for output of products was fulfilled 97 percent by USSR Minstroymaterialov. More than 153 million rubles' worth

of cement, heating radiators, bathroom equipment, sewer pipe and other products were not received by construction projects. The fact that the ministry's enterprises reduced the output of products in comparison with the first half of last year causes concern. The cementmakers, who fell short in deliveries to the national economy by 4.7 million tons of products, are in great arrears. Cement plants carried out the plan for the first half of the year by 92 percent and have not compensated for the arrears up until now. Minstroymaterialov enterprises of the Uzbek, Kazakh, Belorussian and Azerbaijan SSR's permitted the greatest lags.

Naturally, all this complicates appreciably the provisioning of construction projects with cement and other materials and structure.

It goes without saying that interruptions in the delivery of gypsum rock and cinder and a shortage of freight cars affect the enterprises' work adversely. However, the main causes of nonfulfillment of the cement production program were unplanned repairs of equipment because of unsatisfactory maintenance of units, violations of industrial and work discipline and deficiencies in organizing production. It is for these reasons that the Navoi, Karaganda, Balakleya, Karadag, Razdan and Checheno-Ingush plants and of the Vol'sktsement Association failed to meet the plan.

The most rapid assimilation of new capacity is just about the basic reserve for raising labor productivity and increasing output. It must be said that cementmakers are using these reserves unsatisfactorily. Out of 19 enterprises surveyed, capacity had been poorly assimilated at 14 plants. For this reason, the shortfall in deliveries was about 2 million tons of output. The rebuilding of plants is proceeding too slowly. For example, 42 rotary furnaces at 30 cement enterprises were to be rebuilt in 1976-1978, but actually 29 furnaces at 25 enterprises were rebuilt during this period. Nor was the program for expanding cement production by the dry method fulfilled. Lines at the Novo-Karaganda, Navoi and Rezina plants are being erected extremely slowly. And is it normal that highly productive imported equipment be used poorly?

Thus with all the objective causes for interruptions in cement-plant operation, the main cause still is unsatisfactory operation of the enterprises themselves, which does not depend upon external factors.

The work of glass-industry enterprises, which fulfilled the plan for the first 6 months by 96 percent, is bringing many reproaches this year. Especially frequent are violations of the industrial regime for furnace operation at the Velikiy Oktyabr', Lisichansk, Ashkhabad and certain other plants.

Summer is the most favorable time for doing roofing work. It is right now that the builders are in extreme need of roofing materials, but the branch is failing to deliver them. Moreover, roofing-industry enterprises worked worse in the second quarter than in the first. Out of the total arrears of 91 million square meters of materials for roofs, 58 million of the shortfall occurred in the second quarter. Especially lagging are plants in the

Russian Federation, the Ukraine, Uzbekistan, Kazakhstan and Georgia. The causes of delivery failures again are completely defined: poor work of the board-forming machines, low labor discipline, and a personnel shortage.

USSR Minstroymaterialov's program for labor productivity growth for the first half of the year was carried out 99 percent. In essence, the industry is operating at last year's level. Aside from violations of industrial discipline, labor-discipline violations are affecting the economic indicators of the enterprises' activity adversely. About a percent of worktime in the industry is lost because of downtime, absenteeism and lateness for work, even according to data that is far from complete, that is, almost 7,000 people each day are not engaged in production work. Worktime losses are especially great in the minstroymaterialovs of Uzbekistan, Kazakhstan, Georgia and Azerbaijan.

The output of brick and the production of prefabricated structure are of great significance to capital-construction progress in the country. This portion of the industry lags the most. Most brick plants, especially in the Russian Federation, are obsolete and do not correspond to the modern level of production. Meanwhile, centralized funds for reequipping enterprises with machinery are not being allocated. Because of a deficiency in allocations for the first 3 years of the five-year plan, only 29 of RSFSR Minstroymaterialov's 488 ring kilns have been replaced by tunnel kilns. Yet this replacement means not only the mechanization of production facilities but also the creation of conventional working conditions for the workers.

Questions about the demolition of unpromising brick enterprises, and there are about 400 of them in the industry, and about reequipping the industry with machinery are being posed, and not for the first time, but they are being solved extremely poorly. At the current pace of the reconstruction of enterprises that make brick, at least 25 years will be required. One cannot be reconciled to this, of course. Demands that the program for reequipping brick plants with machinery be fulfilled should be raised.

There are still many unused reserves for raising labor productivity and increasing output at USSR Minstroymaterialov enterprises. It is necessary to see to it that the lag in output that has been permitted is eliminated by the end of the year.

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MOSCOW'S BUILDING-MATERIALS INDUSTRY BOASTS OF TECHNICAL PROGRESS

Moscow STROITEL'NAYA GAZETA in Russian 2 Sep 79 p 3

[Article by B. Krylov, deputy director of NIIZhB [Scientific-Research Institute for Concrete and Reinforced Concrete] and professor; and Ye. Tyurin, deputy chief of Glavzhelezobeton [Main Administration for the Prefabricated Reinforced-Concrete Industry] of USSR Minstroymaterialov [Ministry of Construction Materials Industry]: "A Testing Ground for Innovations"]

> [Text] A model of technical progress in the industry has been built up at Glavmospromstroymaterialy [Main Administration for the Industry for Building Materials and Constructional Parts of the Moscow City Soviet].

On the capital's Prospekt imeni Marshal Zhukov is an apartment house that attracts attention not only with its unusual shape and size--26 stories, but also with the beauty of its snow-white walls, which are finished with marble crumb. This type of decoration, as well as the stone-face surface made of crushed granite that embellishes the buildings of the International Trade Center at Red Presna and the wall panels made of white concrete that were used to erect the hotel complex in Severnyy Izmaylov and other Olympiad-80 facilities, and many other new things in decorating Moscow building facades--all these are today's products of Glavmospromstroymaterialy.

The main administration's industry has taken an earnest step forward in recent years. At prefabricated reinforced-concrete enterprises alone, up to 4.7 million cubic meters of structure are being produced.

Each year about 5 million square meters of total housing space, more than 30 school buildings, kindergartens and nurseries for 25,000, hospitals with beds for 2,500, tens of motion-picture theaters, clubs, domestic-services enterprises and other buildings for cultural, domestic-services and social purposes are being introduced in the capital each year. Major industrial and engineering construction is being performed. In order to support more completely the ever-increasing volume of construction, Moscow's prefabricated reinforced-concrete industry has assimilated during the current five-year plan alone output of the main products mix of unified structure called for by the Unified Catalog, which includes sets of articles for 12-story apartment houses of 27 types.

The manufacture of Unified Catalog items was organized, not by building new plants but by making profound qualitative changes in production. The products mix of load-bearing and curtain-wall structure made of lightweight concrete has been greatly expanded, the output of which is almost a third of the total volume. The main administration is implementing a firm policy of intensifying and specializing the production, modernization and reconstruction of industrial lines, based upon recent achievements of science and technology. Basically new industrial and engineering solutions are being introduced.

The creative collaboration of main-administration collectives with workers of NIIZhB, MISI [Moscow Construction-Engineering Institute] imeni V. V. Kuybyshev, MGU [Moscow State University], VNIIZhelezobeton [All-Union Scientific-Research Institute for Factory Technology of Prefabricated Reinforced-Concrete Structure and Articles] and other scientific organizations are extending major assistance in this matter. In the past 3 years alone, at 12 plants more than 40 industrial lines have been rebuilt, 235 equipment units have been modernized and 25 new specialized machines have been installed. Intricate metal molds and tooling were manufactured in a short time for the output of new and effective articles.

Right now the annual output per worker at the main administration's prefabricated reinforced concrete enterprises has reached 345 cubic meters of structure, or 1.8 times the industry average. Accordingly, their production costs and ex-factory prices are 20 and 28 percent lower, respectively.

The main administration has developed and introduced new machinery--a family of low-noise mold-vibrating resonance machines. They are the only equipment of this type in the world for such purposes, and they satisfy completely not only the technical and economic requirements but also the hygienic norms for noise and vibration. Right now 42 resonance installations and lines of various load capacities are operating in Moscow. Hundreds of thousands of cubic meters of reinforced concrete per year are being manufactured at them. This technology enables reductions in the consumption of cement by 10 percent of electricity by one-half to two-thirds, a saving of a fourth of the heat energy ordinarily used, and an economic benefit of up to 5 rubles per cubic meter of prefabricated reinforced con concrete.

According to an evaluation by the USSR State Committee for Science and Technology, the wide use of this equipment in production will save the industry up to 400 million rubles annually.

In solving production tasks, the main administration thinks each time about the final result: raising labor productivity and output quality and saving material and energy resources.

After using gage-pressure chambers and increased temperature parameters (up to 110 degrees C) for heat-treating articles, it was possible to intensify the heat-treatment regime for them. And, simultaneously, great heat savings were achieved. Thus, Odintsovo's Stroyinduatriya [Construction Industry Combine] began to obtain articles with concrete grade

higher than 200 kg-force/sq cm after 5½ hours of heat treatment in a low-pressure chamber, that is, twice as fast as usual. In so doing, steam consumption per cubic meter of output was less than 130 kg instead of the 450 kg of the norm. And the indicators obtained undoubtedly can be improved, since the chambers' possibilities are far from having been exhausted. The shorter time for heat and steam treatment of reinforced concrete and the low-pressure chamber intensify the production processes, speed up mold turnaround, and reduce metal consumption for tooling. And the use of this equipment on one line with resonance platforms creates qualitatively new working conditions in the prefabricated reinforced-concrete industry, making production work socially attractive.

At Moscow's construction-industry enterprises, as at many others, no small share of the equipment is on the assembly flow line. Muscovites have long set themselves the aim of making it more productive. Today, in essence, this problem also has been solved.

The lines are supplied with modern equipment, a conveyor system for preparation and transport of molds has been added, auxiliary operations that are carried out manually everywhere have been mechanized, and highly effective, technically feasible production is created.

A full complex of such mechanisms and contrivances were used for the first time in practice in the domestic construction industry at ZhBI [Reinforced Concrete Products] Plant No 18. The rebuilding of five industrial lines in like manner has enabled annual output of prefabricated reinforced concrete, using the same amount of production areas, to be increased from 180 to 260 cubic meters and more than 5 million rubles to be saved. Manual labor at the plant has been reduced to 20/37ths the former level.

Now Glavmospromstroymaterialy has come close to developing a design for a plant that is based upon the advanced equipment that has been introduced. Output per worker at such an enterprise will be more than a thousand cubic meters of structure per year.

The creation of modern equipment and technology and the organization of production in Moscow's prefabricated reinforced-concrete industry have become decisive prerequisites to a sharp improvement in quality and in the architectural expressiveness of designs. Panels with stone-facing texture that have been certified for the State Emblem of Quality were recognized by a certificate of the VDNKh-78 Exposition. And the equipment that was created for manufacturing panels that are finished with architectural concrete has no counterpart in the world. Next is the production of multicolored concrete. Moscow's Construction Industry Combine has already been preparing for their introduction.

The materials and articles that are being manufactured today by Glavmospromstroymaterialy and the technology employed correspond to the level of world standards, are protected by numerous patents, and have found wide dissemination in the country. The creative and purposeful work of the main administration's collective is being evaluated in the industry. This

is why a group of specialists and scientific workers were deservedly nominated for the competition for the USSR State Prize for having developed and introduced highly effective methods for producing reinforced-concrete structure and parts at Moscow building-industry enterprises.

11409
CSO: 1821

ROLE OF REVIEW IN SAVING BUILDING MATERIALS STRESSED

Moscow STROITEL'NAYA GAZETA in Russian 7 Sep 79 p 2

[Article by A. Kuznetsov: "A Review is Underway"]

[Text] Since the start of the five-year plan, the AUCCTU, the Komsomol Central Committee and the USSR Gossnab have been conducting a nationwide social review for the efficient use of raw products, materials and fuel and energy resources. What must be done so that each construction collective or enterprise in the building materials industry and each worker becomes an active participant in the review?

This was the subject of a talk at a meeting of the leading workers of the ministries, the USSR Gossnab, the central committee of our trade union and the AUCCTU held at the Central Committee of the Trade Union of Workers in Construction and the Building Materials Industry together with the editors of STROITEL'NAYA GAZETA and the journal STROITEL'.

Participating in the discussion were: S. Tsaruk'yan, deputy minister of the USSR Ministry of Construction, A. Kondrashov, deputy minister of the USSR Ministry of Heavy Construction, A. Potapov, deputy minister of the USSR Ministry of Rural Construction, L. Vinogradov, deputy minister of the USSR Ministry of Building Materials Industry, N. Pantyukhov, chief of the Glavsnab [main supply administration] of the USSR Ministry of Installation and Special Construction, B. Iskhakov, deputy minister of the Glavsnab of the USSR Ministry of Industrial Construction, V. Verzhbitskiy, deputy department chief of the USSR Gosnab, L. Zakharova, chief secretary of the review commission, and M. Vasil'yev, instructor of the trade union central committee.

Each year the state allocates the construction workers enormous amounts of material and technical resources. To dispose of these valuables reasonably and economically is the primary and immediate task of the leaders of the construction organizations, the engineers and all the workers.

At present the combating of material losses is assuming exceptionally important significance. And such a problem as the saving of metal has been put on a level of state policy.

At present in all the construction ministries, review commissions have been set up. Such commissions have also been formed in the main and territorial administrations, in the trusts and in all the primary construction and installation organizations. At present they are assisting largely in the work of thriftiness and savings.

The review commission of the USSR Ministry of Construction, as S. Tsaruk'yan stated, is giving important significance to the broad involvement of the workers in daily work in the area of the efficient use of raw products, materials and fuel and energy resources. As a rule, the commission sessions review the questions of the expenditure of materials in the main and territorial construction administrations and the individual trusts.

The review participants in the sector have submitted over 12,000 proposals, and from the realization of them a conditional savings of 24.2 million rubles has been obtained.

The ministry gives substantial significance to the careful expenditure of fuel and energy resources. With the quota of the USSR Gosplan to reduce the consumption rate of boiler and furnace fuel by 0.5 percent, in actuality a reduction of 0.61 percent has been achieved.

The quota for the saving of resources for the present year is no less taut. In comparison with the production quotas, we must save over 100,000 tons of metal, 250,000 tons of cement, and 260,000 m^3 of wood. Along with solving technical problems, the ministry has resolved to increase the effectiveness of the social review, and to see to it that virtually all workers, engineers and technicians participate in it.

The workers are being widely involved in the social review of savings and thriftiness at the industrial enterprises of the USSR Ministry of Building Materials Industry. Last year, the employees of the building materials industry submitted 48,000 different proposals, of which 39,600 were carried out. Some 23 million rubles worth of raw products and fuel and energy resources were saved.

For the USSR Ministry of Building Materials Industry the most important problem remains the saving of fuel, heat and electric power. In the sector a competition has been organized for the best brigade or team in terms of the saving of these vitally important resources. A bonus system is in effect which considers the obtained savings. The results of the saving of fuel, heat and electric power are one of the most important indicators in summing up the results of the all-Union socialist competition in the sector.

In his speech A. Kondrashov touched on an important problem. "If the question of saving resources is to be seriously raised," he said, "we must first of all impose an order on the normative base."

At present the consumption rates for the basic building materials have been worked out by the design and scientific research institutes and have been approved by the USSR Gosplan and the USSR Gosstroy. The ministries have not participated in this and could not make their own comments which they naturally had. In addition, the rates and standards have been calculated for the best operating conditions, and this of course is not always the case. For example, in cement consumption, the standards provide for the use of high quality fillers for the concretes and mortars such as washed sand, gravel and crushed rock. But the ministry does not receive over 50 percent of the demand for high-grade fillers. Moreover, in distributing the material resources, various arbitrary corrections are made in the standards.

At the USSR Ministry of Rural Construction, on the questions of saving and thriftiness the basic emphasis has been put on technical progress. For example, in 1978, the ministry built 743 km of ditchless heating lines. This alone provided an opportunity to save 7,000 tons of metal and 53,000 tons of cement.

Rural construction has its specific features. The ministry is simultaneously building around 60,000 projects with a value from 10,000 rubles to several score million rubles. In the ministry subdivisions, particularly at the small projects, the brigade leader has presently become the main figure at the construction site. Order at the site and a thrifty attitude toward the materials and elements depend upon the brigade. This is why basic attention by the review commissions has been focused on the work with the brigades.

The main task in the work of the USSR Ministry of Installation and Special Construction is to save expensive metal. In 1978, the subdivisions of the ministry saved 62,000 tons of metal. How has this been achieved? First of all by employing more efficient grades of steel and shaped rolled products. By replacing the metal sanitation pipe with polyethylene, wastes have been reduced in cutting.

In this work a definite role has been played by the central review commission of the ministry, and this includes the leaders of the functional subdivisions such as the main technical administration, the main bookkeeping office, and financial department, the department of labor and wages, the Main Administration for the Mechanization of Construction, the Glavsnab, the trade union organization, people's control and the Komsomol.

Visual agitation is an imperative demand for the social review of savings and thriftiness. This was brought up in the comments of the instructor of the trade union central committee, M. Vasil'yev and the chief secretary of the review commission, L. Zakharova. Unfortunately, the aims of the review are still not sufficiently propagandized. On the spot they lack an ordered system for the collection, accounting for and introduction of proposals.

In concluding the meeting, the secretary of the trade union central committee K. Hodinszky pointed out that the review for saving and thriftiness in construction and the building materials industry is a most important national economic measure. The task consists in involving the entire public in it.

The active involvement of all the employees of the sector in the review is that reserve which should be utilized in carrying out the quotas related to the saving of resources.

10272
CSO: 1491

HOUSING CONSTRUCTION IN SIBERIA, FAR EAST EXAMINED

Siberia's Construction Industry

Moscow STROITEL'NAYA GAZETA in Russian 14 Sept 79 p 2

[Article signed Observer: "Siberia's Construction Industry"]

[Text] Capital investment in development of the construction base in Siberia and the Far East is increasing substantially in the 10th Five-Year Plan. Thus far in the five-year plan cement production has increased by 1.9 million tons in these regions, wall materials -- by 530 million standard bricks; crushed rock and gravel -- by 7 million cubic meters. On the whole, however, production of building materials and structures east of the Urals does not yet meet requirements. At the present time 28% of total contractor work in the RSFSR is being performed in these regions, while they account for only 20% of total cement production, 19% of prefabricated reinforced concrete, 17% of wall materials, 21% of non-ore minerals, and 18% of porous aggregate in relation to the specified volume of contract construction work.

In other words, the construction projects of Siberia and the Far East are meeting their needs by only 80-85% from the local construction base. Construction base enterprises are distributed nonuniformly. A total of 93% of cement, 61% of prefabricated reinforced concrete, and 53% of wall materials are produced in Irkutskaya, Kemerovskaya and Novosibirskaya oblasts, and in the southern parts of Krasnoyarskiy, Primorskiy, and Khabarovskiy krays. Production of building materials and structures is concentrated for the most part in oblast and republic centers, while production is little developed in the new economic development areas.

In the past years of the current five-year plan, the majority of local enterprises have performed unsatisfactorily. Particularly lagging are the plants of the RSFSR Ministry of the Construction Materials Industry producing wall materials in Altayskiy Kray, Kemerovskaya, Novosibirskaya and Irkutskaya oblasts, in the Buryat and Tuva ASSR, as well as the industry of the following all-union ministries: the Ministry of Heavy and Transport Machine Building, the Ministry of Industrial Construction, and the Ministry of Transport Construction; plus the RSFSR Ministry of Rural Construction and Ministry of Construction, Road, and Municipal Machine Building. In 1978, for example, the

prefabricated reinforced concrete production target was met only by Tomskaya, Magadanskaya, Kamchatskaya and Sakhalinskaya oblasts, plus the Yakut ASSR.

Work-loading of enterprises remains a serious problem. In the prefabricated reinforced concrete industry, for example, production capacity is being utilized by only 81%, while the figure is 76% for the steel structures and porous aggregate industry. The main reasons for this are miscalculations in designing and construction of facilities, long delays in putting production facilities on line, a low shift factor, considerable equipment down-time, and a high rate of labor turnover.

The situation is complicated by the fact that the capital investment target for growth and development of the construction industry base fails to be met year after year. Construction is proceeding slowly on the Sorsk Silicate Wall Materials Plant, which involves a complete set of imported equipment (the USSR Ministry of Heavy and Transport Machine Building is the contractor), plus several other projects.

At the present time, in addition to the construction ministries, dozens of other agencies are producing building materials and structures in the regions east of the Urals. Frequently organizations of the same type (trusts, administrations, combines) and enterprises turning out the same product are operating in the same town. All this impedes planned growth and development of the construction base.

Plant construction and expansion of existing enterprises must be conducted in such a manner that they can supply their product to all construction organizations in an area, regardless of ministerial subordination. One method which is currently becoming quite widespread in Siberia and the Far East is the method of building enterprises unified into common industrial centers with common auxiliary facilities, services and utilities, and a common cultural and personal services system for the work force.

Worthy of notice is construction of the Tomsk Chemical Combine, which began with establishment of a construction industry, roads, and service lines.

One of the most important trends in establishment of a construction base is the construction of highly-mechanized enterprises which turn out fully-prefabricated builder's supply items and structures. These items should be produced in sets for all types of buildings -- housing, industrial, agricultural, administrative-services. There should occur development of mass production of load-bearing and enclosure structures of lightweight concrete and high-strength (grade 600 and higher) components for large-panel and space-modular building construction, that is, items which ensure minimum consumption of materials, energy resources and labor expenditures.

Lightweight metal structures should be extensively employed, particularly in wall panels with sheet sheathing and efficient insulation, in window and door sashes, in interior partitions, in prefab equipment buildings, etc. Experience in utilizing these items has been amassed. "Sandwich" type panels are manufactured in Magadan, Achinsk, and Novokuznetsk. Three-ply aluminum

panels are being used in test construction for ore beneficiation mills in the Yakut ASSR, for buildings at the Vilyuysk and Yakutsk GES, plus other facilities. Prefab buildings of lightweight structures and container-type buildings in providing facilities for new settlements, and housing with the watch and expedition methods of labor organization are particularly efficient.

In the regions of Siberia and the Far East there are great possibilities for producing structures and building products of local raw materials. Extensively usable for such purposes are tailings from mining and ore beneficiation enterprises, as well as ash from thermal electric power plants. Eastern Siberia, for example, contains abundant quantities of perlite, which can be used as a raw material in the large-scale production of insulating materials, particularly high-rigidity mineral-wool insulation board. There is great potential for the production of wall materials, high-strength and fractionated crushed rock, gravel, sand, porous aggregate, as well as glued wooden structures, polymeric products, etc. Construction of such enterprises will make it possible sharply to reduce the quantity of such items hauled in from the western parts of the country.

A broad spectrum of basically new machinery is needed for the regions east of the Urals. Equipment is being shipped there, but not in sufficient quantity. In addition, climatic conditions impose special requirements on equipment operation and maintenance. Machinery and equipment wears rapidly. It is for this reason that at the present time approximately one fourth of all machinery is down due to delayed major overhauls and routine maintenance. Therefore, when establishing a production base for the construction industry, we must at the same time build facilities for equipment repair. Unfortunately this rule is frequently ignored.

We possess sufficient experience in building an industrial base for the construction industry. Intelligent utilization of this base under the specific conditions of Siberia and the Far East is an urgent, critical task.

UDC: 728.(571.63)

Housing Construction in the Far East

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 7, Jul 79 pp 4-6

[Article by V. V. Nesterov: "On Housing Construction in the Far East"]

[Text] The Principal Directions of Development of the USSR National Economy in 1976-1980 state that in order to provide the regions of Siberia and the Far East with a work force, construction of housing and cultural-services facilities in these regions should proceed at a more rapid pace. How is accomplishment of this task being performed under the conditions of the Far East?

In the last 10 years builders and designers have made a large contribution toward development and improvement of housing and civil construction in the Far East.

In 1965 as much square footage of housing space per thousand population was going up in the Far East as the figure for the RSFSR as a whole, while subsequently the housing construction rate increased substantially. In 1970 62 square meters more housing per thousand population was being erected here than the average for the RSFSR, 106-108 square meters more than in Rostovskaya and Voronezhskaya oblasts, and 134 square meters more than in Krasnodarskiy Kray. In 1975 more total square footage of housing was completed in the Far East than, for example, in Voronezhskaya and Rostovskaya oblasts and in Krasnodarskiy Kray, surpassing these latter by 136, 134 and 144 square meters per thousand population respectively. During the period 1966-1975 the highest rate of construction of housing per thousand population in the Far East was registered by Khabarovskiy Kray and Kamchatskaya Oblast. A steady increase in the pace of housing completion is characteristic of Primorskiy Kray, Amurskaya and Kamchatskaya oblasts. A characteristic feature of the structure of capital construction in the Far East is a high volume of housing construction. In the Ninth Five-Year Plan, for example, at Glavdal'stroy housing, municipal and cultural-services construction comprised 50-54.2% of the total volume of construction work, while the figure was 45.1-46.4% at Glavkrasnoyarskstroy and 54.4-58.5% at Glavvladivostokstroy.

From this it is clear that growth in the volume of housing construction and a housing completion rate in the oblasts and krays of the Far East which is higher than that of the oblasts and krays of the developed regions of this country, create favorable conditions for holding population and constitute an important principle of territorial planning of housing-civil construction.

The main direction being taken in solving the housing problem in the Far East is mass government construction. For a number of reasons the role of cooperative and private construction is at the present time less significant than in the more highly-developed parts of the country.

Large-panel construction plays an important role in boosting the volume of housing construction.

We shall cite several examples. In the Eighth Five-Year Plan the entire increase in housing construction completion in Primorskiy and Khabarovskiy krays and in Kamchatskaya Oblast was accomplished due to the growth and development of large-panel building construction. In the Ninth Five-Year Plan growth in construction of large-panel apartment buildings outstripped growth in construction of buildings of all other types in the Far East. This trend is continuing in the 10th Five-Year Plan.

Priority growth in large-panel building construction is taking place with a simultaneous decrease in the volume of construction of brick and wood frame housing and buildings with small-block walls, which in our opinion is not right. Alongside large-panel construction, we must build housing of brick, wood and other materials. We must also maximally raise the level of industrialization of these types of construction. In 1975 large-panel building construction accounted for 46% of completed square footage nationwide, while the figure was only 33% for the Far East. Amurskaya and Magadanskaya oblasts and the Yakut ASSR were particularly lagging in the growth of large-panel building construction.

In the 10th Five-Year Plan production capacity in large-panel building construction is increasing by 50%, including 170% in Amurskaya Oblast and 80% in Magadanskaya Oblast. By the end of the 10th Five-Year Plan 55% of total square footage will be in large-panel and modular buildings. Thus the Far East will achieve the nationwide figure for prefabrication of housing construction targeted for 1980.

Production facilities for large-panel building construction are going into operation for improving housing conditions for the rural populace and for construction of well-designed housing.

Qualitative changes are taking place in housing construction in the Far East: the structure of apartment buildings is improving (as regards number of stories, wall materials), the comfort level and striking architectural appearance of apartment buildings are improving, and their exterior finish is also improving.

With growing demands on quality of housing, there is continuing a transition to construction of large-panel buildings of new, improved series, including series 121 in Khabarovsk, 75 in Blagoveshchensk, 135 in Petropavlovsk-Kamchatskiy and Yuzhno-Sakhalinsk, 122 in Magadan, and 83 and 125 in Vladivostok. This task is being accomplished by means of renovation and retooling of large-panel fabrication plants. The production capacity of these plants is also increasing.

In 1975 110,000 square meters of large-panel buildings were constructed on new-series standard designs in Khabarovskiy Kray, while the figure rose to 231,000 square meters in 1977. The Khabarovsk Building Construction Combine, which fabricates large-panel buildings of the new series 111-121, has reached its full designed production capacity. At the same time certain reserve production potential still exists at the combine.

Series E-179 modular-panel buildings designed by the Central Scientific Research and Planning Institute of Standard and Experimental Housing Design are being erected in Khabarovsk. We must note that at the present time these buildings are inferior in a number of economic indices to series 111-121 large-panel buildings. Calculated outlays for the latter are 27.2 rubles less per square meter of total floor area, capital investment in the housing construction production base is 18 rubles less per square meter, and 4 kilograms per square meter less steel is consumed. Buildings of these types differ little in standard construction-erection labor requirements. The main reason for this lies in the inadequate degree of prefabrication of structures manufactured at the Khabarovsk Modular Building Prefabrication Plant, as well as the fact that production facilities are not up to full production capacity.

The more rapid growth of fully prefabricated building construction is due to its high technical-economic indices. One should bear in mind thereby that with a worsening of climatic conditions calculated expenditures for brick buildings, for example, are greater than for large-panel buildings. For example, the actual labor requirements at the construction site are 2.2 to 3.5 times as great for brick buildings as for large-panel buildings of the new series, while construction rates from two to two and a half times as long.

In addition, construction of brick buildings in the eastern part of the BAM [Baikal-Amur Mainline] zone requires 30% more capital investment in production facilities than is required by construction of large-panel buildings. In the southern zone of the Far East there are also good growth prospects for poured-on-site construction, which possesses a number of advantages over large-panel: decreased consumption of steel and concrete, and most important -- savings in capital investment in production facilities. Considerable work has been done by the institutes of RSFSR Gosgrazhdanstroy and Gosstroy on the future development of housing-civil construction in the BAM economic exploitation zone. Giprogor, with the participation of a number of institutes, has developed a master plan for the regional layout of the BAM zone. It specifies areas which contain relatively favorable environmental conditions for human habitation, where it is recommended that processing and manufacturing industry be located. In order to create comfortable living conditions and a high level of cultural-personal services, population distribution in the BAM zone is to involve concentration of population in base cities, which form a hub for group population distribution systems (permanent, expedition, watch) and intercommunity cultural-personal services. Apartment building types across the entire spectrum of requisite varieties have been specified for future construction for each city, town and community in the BAM zone. The task consists in prompt implementation of these proposals, which ensure considerable social, urban-planning and economic effect. The large-scale construction industry base being established in the city of Shimanovsk, Amurskaya Oblast, and existing production facilities of building construction enterprises in Komsomol'sk-na-Amure, Blagoveshchensk, and Khabarovsk naturally are not solving all the problems of housing construction in the eastern sector of the BAM zone.

In the future it will be necessary to increase the production capacity of large-panel fabrication plants and to build new enterprises. This problem must be resolved not by organizing small construction industry facilities of individual agencies but by building up the production base of the principal general contractor organization -- Glavdal'stroy of the USSR Ministry of Heavy and Transport Machine Building.

In our opinion construction of permanent-type fully prefab housing in remote, undeveloped parts of the Far East and in the BAM zone should be preceded by construction of temporary prefab and container-type housing, as well as the establishment of watch-type settlements.

One effective way to solve the problem of providing modern housing to geologists, construction workers, surveying and prospecting teams, and transport organization personnel, the pioneers in opening up new regions, is the establishment of large-scale building construction enterprises of the interrayon type in the southern areas of the Far East and Siberia. These enterprises should set up the manufacture of fully prefabricated buildings and modular units containing the requisite plumbing and equipment. The manufacture of prefab temporary buildings at these enterprises should maximally employ such lightweight and high-strength materials as aluminum, steel, plywood and efficient insulating materials (plastic foam, mineral wool,

polyurethane film). The light weight of these buildings will make it possible to airlift them to the erection sites (by both fixed-wing and rotary-wing aircraft).

The 10th Five-Year Plan has seen the beginning of establishment of plants of an interregional type, which simultaneously perform the functions of rear-area support base facilities for the construction industry. We should mention first and foremost the Krasnoyarsk Interoblast Cabinetry and Construction Products Combine, the Sayanogorskiy Prefabricated Aluminum Buildings Combine, and a plant for the fabrication of mobile buildings of lightweight modular units in the city of Bugul'ma in the Bashkir ASSR. The number of such enterprises will increase in the future.

For construction of fully prefabricated housing in small communities in the northern zone it would evidently in many cases be advisable to establish mobile building construction combines. According to the figures of LenZNIIEP [expansion unknown] and Krasnoyarsk Promstroyniiproyekt, it is cheaper to haul the temporary prefab building and process equipment for such a plant than to transport 30-40 buildings weighing a total of approximately 0.5 million tons.

We must also note problems in Far East housing construction which have not been fully resolved. At the present time, when housing conditions for the population have become substantially improved, increasingly high demands are being imposed on quality of apartment buildings, layout and finish of apartments.

As practical construction experience indicates, improvement in the quality of housing should be coordinated with an improvement in the technical level and effectiveness of capital spending. Otherwise situations arise where the interests of the clients and construction organizations do not fully coincide.

Here too we can cite the following example. The Magadan DSK [Building Construction Combine] is erecting series 113-123 large-module buildings and large-panel five-story buildings of the old 1-464 AS series. Apartments in large-module buildings are distinguished by more convenient layout and a high degree of comfort. Therefore clients prefer to erect large-module buildings. But the estimated cost per square meter of total floor space in large-module buildings and labor requirements are 3.5 times as much. In addition construction takes longer (50% longer). Besides that, with the fabrication of structures for series 123 apartment buildings at the Magadan DSK, output from existing production facilities is declining. Therefore builders seek to erect a maximum number of buildings of the large-panel type. The oblasts and krays of the Far East are in urgent need of a large variety of standard designs for public buildings as well, which would maximally take into consideration the conditions of construction and operation of buildings in the various zones of this region. Also needed are housing and public building design standards which reflect the specific features of the various zones in the Far East.

It is also important to improve the quality of external finish of apartment buildings. For the most part standard buildings are being erected in the major cities of the Far East, in the oblast and kray centers. And in order to provide a greater diversification of buildings, a large variety of finishing and facing materials is needed. But the lack of local facilities to produce many types of these materials, as well as the fact that they are hauled from many other parts of the country limit the possibilities of diversifying the exterior appearance of buildings.

We have briefly touched upon those items which we wanted to discuss in this article. Of course there are many more. But the main thing is to ensure that all participants in the construction process, including designers, builders, and construction industry officials apply a maximum of productive energy and efforts to accomplish the tasks specified by the 25th CPSU Congress in the area of further development and improvement of housing construction in the Far East.

3024
CSO: 1821

CONSTRUCTION, [illegible] MACHINERY AND [illegible]

PLANS FOR DEVELOPMENT OF TYNDA CITY REVIEWED

[illegible] in Russian Jun 79 pp 46-47

[Article by Z. Traytman, deputy chief engineer of shop No 5 of Mosproyekt-1: "The Planning and Development of Tynda"]

[Text] In line with the construction of the Baykal-Amur Mainline [BAM] a decision was taken to turn the settlement of Tyndinskiy located at the center of the route into a city which would become the base point for both construction and operation of the future mainline.

The general plan for Tynda was worked out by Lengiprogor [Leningrad branch of the State Institute for the Planning of Cities]. On the basis of it, "Mosproyekt-1 [Institute for the Planning of Housing and Civil Engineering Construction in the City of Moscow] has carried out the plans for detailed design of the first construction stage of the city and the technical plans for the development of the first stage of construction.

The detailed plans include the territory of the central part of the city for 35,000 inhabitants with the necessary services and utilities. The technical development plan encompasses the residential area in the central part of the city with a population of up to 20,000 persons.

Along with the city development plans, plans have also been worked out for the development of the station square with a railroad terminal for 400 passengers, a municipal square and a zone for educational institutions.

Tynda should become a major railroad junction which is located on the intersection of the central part of the BAM with the line linking the Trans-siberian mainline with Berkakit station. The Amur-Yakut Highway [AYaM] linking the BAM with Yakutia will pass through the city.

The city is located on the left bank of the Tynda River. It is surrounded by hills which rise 170-250 meters above the river level.

The climate of the construction area is sharply continental with a severe extended winter with little snow and a brief, moderately warm summer.

The mean annual temperature is -6.3° C. The absolute minimum air temperature in the lower part of the valley is -64°, and the absolute maximum +34° C.

The duration of the period with negative temperatures is 206 days. The average annual amount of precipitation is 580 mm. The greatest relative air humidity is 87 percent, and in the winter season 73 percent. The prevailing wind direction is westerly, and its speed is 3.5 meters per second.

The region is in the zone of permafrost ground with a temperature from 0 to -1° C. Permafrost rock in this area is of an insular distribution and 10-40 meters thick, and the depth of seasonal thawing is 3.0-3.8 meters.

Panorama view of the development--the residential districts of Tynda put up by Moscow construction workers who are providing sponsorship aid to the BAM.

In accord with the SNiP [Construction Standards and Rules] and the explanation of the seismic service, the region has an initial seismicity of 6 points.

The territory of the future city has been built up with temporary housing with the scattering of the warehouse, trade and service facilities, as well

as the modern towns of the existing settlement of Tynda. At present with the influx of construction and railroad workers, the total population of Tynda is around 35,000 inhabitants.

The future development of Tynda envisages an increase in the size of the population up to 75,000-100,000 persons with the expansion of the railroad junction as well as with the development of the ancillary sectors such as the construction industry, woodworking industry, prospecting for mineral deposits, and so forth.

The detailed plans have been carried out in the traditions of the Soviet school of urban development, that is: microrayons--residential areas with a center--city. The demands of the SNiP, the local traditions and the terrain of the territory have been considered.

The urban development plans provide for the organizing of five microrayons with a total population of 35,000 persons; the creation of the zone of the urban center located on the intersection of two main arteries and including the general municipal trade, cultural and administrative facilities; the organizing of a recreational zone along the quay with the including of the city sports complex in it, as well as the development of a city mountain park.

In the region of the intersection of the main city artery with the Amur highway, a two-level bypass will be built. There are also plans to reconstruct and build new roads and thoroughfares, as well as a network of carways for municipal and private transport.

The following factors have underlain the elaboration of the architectural planning structure of the city:

1) The use of the particular features of the terrain (a descent of up to 40 meters), the creation of a system of planted expanses, as well as the linking of the central part of the city with the quay, the sports complex and the mountain park;

2) The interrelating of the functional and spatial organization of the territory achieved by the arranging of the residential microrayons around the intersecting main arteries on which the basic urban facilities are located such as the cultural and social center (movie theater, club, library and gymnasium), a trade center (hardware and food stores, a restaurant and personal services combine), the House of Soviets and administrative buildings;

3) The organization of residential groups of microrayons with the incorporating of the children's school and preschool institutions, trade and service facilities in a single complex for reducing walking and creating courtyard areas protected against the prevailing winds.

The plan provides for the zoning of the residential, industrial-municipal [illegible], bath, printing plant and garages] and educational territories and a hospital complex. The industrial zone and the railroad station are located on the right bank of the Tynda River outside the city limits. Planted areas are to be maintained as much as possible, and the existing forests are to be turned into city parks and recreational zones.

The building up of the housing groups is mixed, basically with five- and nine-story buildings with individual high-rise buildings. For forming the central part of the city and for creating the urban development accent and a striking silhouette for the city, five-six focal high-rise residential buildings have been incorporated. The natural terrain which drops like an amphitheater to the Tynda River makes it possible to give the city characteristic features.

The total volume of housing construction within the limits of the detailed plan is [illegible] m^2, including the first stage of 217,000 m^2.

The first construction stage outlined in the detailed plan has been designed from several types of housing and cultural and service enterprises. The particular features of the relationship of the housing and cultural and service enterprises are related to the climatic conditions. Particular features of the design include the bringing of them as close as possible to one another, the maintaining of protective expanses, the preservation of planted areas and the use of the natural terrain.

The choice of the place for the primary construction has fallen on a territory which excels both in terms of location and transport support. The plans provide all the necessary cultural and service facilities for the population.

In the microrayons are located the daily service enterprises with the observance of the standard accessibility radiuses. The trade and dining enterprises, the service combines and others have been brought together in the same areas.

In the longitudinal artery of the city is located the administrative and trade-social center. It includes the House of Soviets, the House of Communications, the administrative building for the directorate for the construction of the BAM and Glavbamstroy [?Main Administration for the Construction of the BAM], a movie theater, club, library, a sports complex, food and hardware stores, a restaurant and a service combine.

The hospital complex and the sanitation and epidemiological station (SES) are located on separate areas. The municipal zone includes the Service House, a bath, a bakery and garages.

For the residential building, housing of the series 122 BAM has been recommended and the buildings have been worked out by the institute LenZNIIEP

Construction of housing of the 11-49 MM-1 series, the elements of which are being produced by the Moscow DSK-1 and transported to site.

The plans for the nurseries, schools, trade and service enterprises and the buildings of the hospital complex have been drawn up by Mosproyekt-1. These projects are also being erected by construction workers from the Order of Lenin Glavmosstroy (Main Administration for Housing and Civil Construction in the City of Moscow).

Construction of the housing of the II-49 series is viewed as experimental, and many questions of installation and finishing of the buildings are being solved in the process of erecting them.

The experience of erecting and operating housing of the II-49D series affirms the correctness and the timeliness of the decision to deliver products from factory for the first stage. However, it is essential to quickly begin production of five-story housing of the 122 BAM series and to begin their erection.

During the first construction stage, difficulties arose as a result of which the development was carried out not comprehensively and there were deviations from the design decisions. An example would be the erection of the temporary utilities such as boiler houses, sewage holding capacity, power trains, and so forth.

Construction in individual areas, the absence of the necessary selection of standard plans for forming the residential areas, and delays in building the center and arteries have reduced the architectural level and have led to carelessness and disorganization in development.

For providing comprehensive development of Tynda, we feel there must be a single client in the form of the USSR Ministry of Railroads. The concentrating of the capital investments of the involved ministries and departments in the hands of this ministry, and the determining of their proportional participation in building the cultural and service facilities and utilities can rectify the existing situation, and will help to carry out the development of the city in a consistent and organized manner.

It is also very important to determine a single contractor. At present many administrations and trusts are working on subcontracting bases for the head construction organization, Glavbamstroy. For this reason a uniform technical policy has not been worked out, and designing is carried out using products of Moscow industry as well as from the Union catalogue. The creation of a single construction organization in the city in the person of Glavbamstroy will make it possible to ensure comprehensive development.

The assigning of the functions of a general designer to one of the institutes of the RSFSR Gosstroy would also be beneficial. This will provide an opportunity to more fully exercise control over the allocating of land plots, to carry out a uniform urban development policy, to have consistent integrated designing of the microrayons, and to determine the sequence and volumes of construction by the years. With such an organization, it will also be possible to have clear planning of the design, research and construction work.

However, regardless of all the difficulties the construction workers and designers are making every effort to ensure the comprehensive development

of Tynda on a high urban development level using progressive plans for housing and public buildings and installations.

In the near future a new industrial and cultural center will rise amidst the primordial taiga of Eastern Siberia.

10272
CSO: 1821

AZERBAIJAN HOUSING CONSTRUCTION NEEDS GREATER EFFORT

Baku BAKINSKIY RABOCHIY in Russian 14 Sep 79 p 1

[Text] Constant growth in the material and cultural standard of living of the people has been and continues to be the highest goal of our party's economic strategy. Housing construction is the most important component of this goal. It is no accident that Comrade L. I. Brezhnev emphasized the following in his report to the 25th CPSU Congress: "Developing the draft Fundamental Directions, the Central Committee devoted special attention to housing construction. Five hundred fifty million square meters--such is the target for the five-year plan. We will strictly demand that planners and builders improve apartment planning, and that they build adequately, with quality, and beautifully."

Guiding itself by these directives, the republic's party organization is devoting its most persistent daily special attention to housing construction problems. As with all capital construction, housing construction is constantly in the center of attention of the Azerbaijan SSR Communist Party Central Committee, which just recently adopted a number of resolutions having great influence on improving the technical and economic indicators of work in this highly important sector of the republic's national economy. The construction base is growing noticeably stronger right before our eyes. This expressed itself in housing construction as fundamental reorganization of Baku house building combines, creation of a third house-building combine, erection of large-panel house building plants in Kirovabad and Masally, and as arisal of specialized administrations and other organizational entities.

Growth in the strength of the construction base and intensification of organizational and political education work at the construction sites have made it possible to erect, in 7 months of the present year at the expense of state capital investments and the assets of housing construction cooperatives, residential buildings with a total area of almost 366,000 square meters, and to raise labor productivity by 3.4 percent.

Some construction subdivisions have improved their work and the corresponding indicators this year. Party, trade union, and business organizations of construction enterprises have intensified their supervision of socialist competitions, and they have started doing more to disseminate the experience of the best collectives and individual innovators. A highly serious and interested approach to the work has made it possible for SU-1 [Construction Administration No 1] of Glavbakstroy [not further identified], as an example, to maintain an even month-to-month rhythm in its work. Instead of the planned volume of 1,489,000 rubles, in 7 months the collective completed work worth 1,558,800 rubles. During this time it saved 35,000 rubles, and its output exceeded that foreseen by the plan by 2.2 percent. In a word, an orientation toward improving all work indicators without exception is typical of the construction administration managed by the young engineer S. Guseynov. Good results are also being achieved by builders of SU-24 led by B. Seryy, making it possible for them to win the Red Banner of Glavbakstroy for the second quarter.

However, far from all construction administrations are operating in such fashion. The requirements of state standards, plans, and specifications are often violated at many construction sites of one of the republic's leading housing construction organizations--Glavbakstroy. Adequate concern is not being shown for raising the qualifications and improving the proficiency of builders. Unrhythmical commissioning of residential buildings is doing significant harm to construction quality. The bulk of such buildings are turned over to clients at the end of the quarter, half year, or year following feverish work at the last minute, such that there are many incomplete jobs and defects. This in turn leads to the need for numerous corrective jobs and elicits unproductivie consumption of resources and materials.

BAKINSKIY RABOCHIY readers write that habitation of many residential buildings accepted for operation is delayed for long periods of time. In places like Kirovabad, for example, where Trust No 3 is erecting residential buildings in a new microdistrict, it can be no other way, since the issue of bringing in utility lines has still not been resolved.

Without a doubt the clients are also to blame for the low level at which residential building commissioning assignments are completed. Only their lack of exactingness can explain the fact that the 9-month assignment for commissioning housing has been only 10 percent completed by the Gosvinkomitet [not further identified], 21 percent completed by the Ministry of Housing and Municipal Services, 27 percent completed by the Ministry of Agriculture, 29 percent completed by the Ministry of Education, 30 percent completed by the Azglavenergo [not further identified], 35 percent completed by the Ministry of Land Reclamation and Water Economy, and 45 percent completed by the Glavazmelnovodstroy [not further identified].

The situation cannot but elicit alarm, and it requires implementation of the most immediate and decisive steps. They must first of all take the

steps of improving work organization, correcting shortcomings in material-technical supply, raising the responsibility of the personnel, and strengthening discipline at each construction site.

A recent decree of the CPSU Central Committee and the USSR Council of Ministers on improving the management mechanism required reorganization of the control system and introduction of the most advanced and progressive work methods. But in Glavbakstroy, for example, this work is proceeding unsatisfactorily. At a time when the leading construction organizations of the country are switching more and more resolutely to the complete outfit supply system and to other progressive forms of housing construction supply, such systems are being introduced extremely sluggishly here.

Housing is being erected today doubtlessly better than it had been built not so long ago. The architecture of the buildings has become more expressive, the apartment layouts are better and more convenient, and better amenities are bing provided to territory around residential complexes. At the same time apartments are still often presented to the client with numerous shortcomings, inasmuch as the work is sometimes accepted without strict control or meticulous job-by-job inspection. There is not much time left before the end of the present year, which precedes the glorious jubilee of our republic and the Communist Party of Azerbaijan SSR. We must utilize this time with the greatest productivity, such that we could catch up and place the necessary volume of housing into operation. The party organizations and executives of sectors engaged in housing construction are obligated to take the most energetic steps to eliminate shortcomings hindering complete assimilation of allocated assets. They must not delay in analyzing the reasons why certain subdivisions and construction sites are experiencing slowdowns, and they must do everything possible to correct the shortcomings and finish off the year with an honorable report to the motherland. [14-11004]

11004
CSO: 1821

PRESENT STATUS OF HOUSING, MUNICIPAL SERVICES REVIEWED

Moscow EKONOMICHESKAYA GAZETA in Russian No 39, 1979 pp 1-2

[Text] The objective of housing and minicipal services is to provide laborers with suitable housing, water, heat, gas, and electricity, to maintain highly comfortable urban public transportation, and to offer other municipal and personal services.

Development of housing and municipal services goes a long way to predetermine growth in the welfare of the Soviet people and their working, personal, and resting conditions. Housing and communal services have now become a major engineering sector.

The country's housing fund, to include the urban housing fund, is growing rapidly (Table 1). Its quality is improving constantly: New residential buildings are being erected in compliance with all modern requirements concerning public services and amenities, and the old housing fund is being refurbished according to plan (Table 2).

Table 1. Urban Housing Fund (At Year's End, Million Square Meters of Total Housing Area)

	1965	1970	1975	1978
Total fund	1238	1529	1867	2070
Collectivized fund	806	1072	1385	1575

The cost of the housing fund makes up a quarter of the cost of all of the fixed capital in the country's national economy. There are about 3 million

Table 2. Amenities Provided to the Urban Housing Fund (Percentages of Collectivized Fund)

	1970	1975	1979 (plan)
Water	78.5	84.8	87.5
Sewer	75.5	82.4	85.3
Central Heating	73.3	79.0	83.7
Gas	62.0	76.9	78.4
Baths	57.2	71.3	76.5
Hot Water	34.0	46.3	52.1

workers with the most diverse specialties in enterprises and sector organizations today.

The right to housing guaranteed by the USSR Constitution is being practically exercised in our country.

In the Tenth Five-Year Plan, residential buildings with a total area of 550 million square meters are to be built with the support of all financial sources. This means that approximately another 55 million persons will be entering new homes. As before, the bulk of the housing is being erected on the basis of state capital investments. The volume of cooperative housing construction is increasing simultaneously, and assistance is being provided to individual housing construction in small cities, towns, and villages.

The housing construction program planned for the first half of 1979 has been completed successfully. In 3.5 years of the Tenth Five-Year Plan more than 35 million Soviet citizens received new apartments or improved their living conditions.

Much attention is being devoted to the quality of housing construction, to reducing construction time, to raising the comfortableness and improving the planning of apartments, to using new standard plans for housing construction offering a more convenient apartment layout, to increasing the area of kitchens, auxiliary rooms, and anterooms, and to providing better trim and equipment.

The housing fund is continuing its transition in the present five-year plan to major heat supply sources; more housing is being provided with gas, and the amenities and architecture of cities and other population centers are

being improved. Special attention is being turned to improving operation of the housing fund and improving its maintenance.

Owing to state capital investments into municipal construction, water supply will increase by the end of the five-year plan to more than 19 million cubic meters per day. Sewage treatment plants will be built and expanded to handle almost 21 million cubic meters of sewage per day. Heat and gas supply volumes are increasing. The total length of water, heat, and gas networks and sewage drains will increase by more than 100,000 kilometers. Almost 21.4 million apartments in the housing fund of local soviets, ministries, and departments will be outfitted with gas and electric ranges with the support of all financial sources.

As a result by the end of the five-year plan the availability of water per resident will increase by almost 20 percent, the level of gasification and the supply of electric ranges to apartments in cities will be increased to 85 percent, and the level of these amenities in the countryside will be increased to 78 percent. On the whole more than a billion rubles of capital investments are being allocated to housing and municipal construction.

Fulfilling the assignments of the Tenth Five-Year Plan, workers of the housing and municipal services have completed a significant amount of work aimed at improving cities, towns, and rural population centers, to supply them with centralized water, gas, and heat, to build new water treatment and sewage systems and other facilities, and to reconstruct existing ones.

In 3 years of the Tenth Five-Year Plan they have built and commissioned residential buildings with a total area of more than 323 million square meters--with about 232 million square meters being supported by state capital investments.

Since the beginning of the five-year plan new cities with all of the services and amenities have grown up in the country with a consideration of all requirements insuring public comfort. We can also cite many examples of successful new residential complexes, such as Solnechnyy in Dnepropetrovsk, Obolon' in Kiev, Sosnovaya Polyana in Leningrad, the settlement of the Romaneshty Sovkhoz Plant in the Moldavian SSR, the villages of Lenino and Vertelishki in the Belorussian SSR, and many others. Modern improved blocks and microdistricts have appeared in practically all of our cities. The countenance of many rural population centers has changed beyond recognition.

The best results in completing the set assignments of placing residential buildings into operation were achieved wherever the party committees and the executive committees of the local councils of the peoples deputies display constant concern for the construction projects and provide timely and effective assistance to them.

Significant successes have been achieved in housing construction during the present five-year plan in Moscow and Leningrad, in Leningrad Oblast, in

Omskaya Oblast, in Khabarovskiy Kray, in the Yakut and Udmurt ASSR, and in Ukrainian, Kazakh, Lithuanian, and Georgian SSR.

The amount of work done to improve population centers increased greatly in this five-year plan. Enterprises and organizations of the ministries of housing and municipal services are doing a great deal of work to improve minicipal services to the public. State capital investments earmarked for development of subsectors of the municipal services are being utilized more effectively with every year. Since the beginning of the five-year plan the length of water supply networks in cities increased by 27,500 kilometers; the length of sewage networks increased by over 13,000 kilometers, while gas networks increased by 14,500 kilometers.

Average daily consumption of drinking water per resident increased by more than 10 percent. Large sewage treatment plants employing biological water treatment have been built in Minsk, Gor'kiy, Kuybyshev, Khar'kov, Astrakhan', Zaporozh'ye, Aktyubinsk, Orenburg, Solingorsk, Panevizhis, and other cities.

All forms of urban passenger transportation have enjoyed further development. The total length of streetcar tracks increased by more than 300 kilometers, while that of trolley lines increased by more than 1,700 kilometers. The rolling stock of urban transportation systems has been significantly supplemented by modern cars and engines.

The quantitative results achieved are closely associated with improvements in work quality and with greater excellence of municipal services to the public.

At the same time the results of housing construction and municipal services could have been much better, had there not been a number of significant shortcomings. During the five-year plan a number of republics, oblasts, krays, and cities chronically failed to complete their assignments for putting residential buildings to use. Housing construction fell short of the planned volumes in the Kirgiz, Tadzhik, and Turkmen SSR, in the Smolenskaya, Kostromskaya, and Novgorodskaya oblasts, in the Dagestan and Karelian ASSR, and in Stavropol'skiy Kray.

Serious complaints have been levied against the quality of residential construction. We frequently observe cases of residential buildings being submitted for use with significant defects and incomplete work in many cities, to include Frunze, Chimkent, Semipalatinsk, Odessa, Penza, and others. Construction efforts are not integrated in the residential areas of a number of the country's cities. External improvement and vegetation of territories undergoing construction in Murmansk, Volgodonsk, Krasnoyarsk, and cities of Altayskiy Kray is behind. Many organizations continue to commission residential buildings unrhythmically throughout the year.

The housing fund of many cities and towns is still not being operated satisfactorily, which often leads to premature wear of the buildings. Due to poor organization, the plans for overhaul and current maintenance of residential buildings are often not met, especially by small departmental housing administrations; meanwhile, transfer of the departmental housing fund to the local soviets is still proceeding too slowly.

Table 3. Growth in Passenger Loads of Urban Electric Ground Transportation (Millions of Persons)

	1975	1978
Streetcars	8235	8355
Trolleybuses	7963	8618

Housing with a total of 112.5 million square meters is to be built in the fourth year of the Tenth Five-Year Plan with the support of all financial sources. In this case state capital investments will support commissioning of 77.8 million square meters of housing space. This year's plan for housing construction is stiff, but it is fully realistic, and this means that its completion will strengthen the material foundation for further improvement of the standard of living of the laborers.

In the time left before the end of the year, we must concentrate the efforts of the country's entire house building conveyer toward successful completion of the set assignments.

Theprogram for municipal construction was implemented successfully in the first half of this year. More than 600 million rubles of state capital investments were allocated just to further development of water pipelines, sewage systems, and gas and heat supply. This made it possible to increase, in half a year, water availability by 335,000 cubic meters per day, the capacity of sewage treatment plants by 142,000 cubic meters of sewage per day, and heat supply by almost 300 gigacalories per hour. During this time the total length of sewer drains increased by 325 kilometers, while that of water, gas, and heat networks increased by more than 2,800 kilometers.

Organizations subordinated to the councils of ministers of the Belorussian, Armenian, Georgian, and Uzbek SSR, to a number of union and union republic ministries, and to the Moscow City Executive Committee enjoyed the best results in construction of municipal facilities.

Much still has to be done to improve the condition of the existing housing fund. Now that we are making a major transition in housing construction to a qualitatively new stage, and now that residential buildings are becoming complex engineering structures, the demands laid on organizing competent operation of the housing fund have grown significantly. The task of workers in the municipal services is to concentrate their attention on prompt and quality performance of current repairs and overhaul. This is especially important if we consider the experience of the past winter, which became a serious trial to municipal services employees.

But unfortunately not everyone learned their lesson from this experience. In a number of places the residential and public buildings are not being prepared satisfactorily for operation in the cold part of the year, the preparedness of the heating equipment and utility lines is insufficient, and far from everything has been done to insure economical use of fuel and power.

One of the most important tasks continues to be that of developing water and sewage services, of constantly improving the use of these systems. Much work has yet to be done in relation to heat supply, development of streetcar and trolleybus enterprises, provision of modern rolling stock to these enterprises, improvement of power management, and construction of new streetcar routes and trolleybus lines.

Consolidating the achievements of 3.5 years of the five-year plan, workers of the housing and municipal services are constantly broadening the socialist competition for the best results at least outlays by every labor collective. The Kazan' City Repair and Construction Trust was the initiator of the socialist competition in the sector, pledging to surpass the plan for the current year for all repair and construction administrations and enterprises.

Collectives of the Rostovoblgaz Production Administration, the Road Building and Improvement Trust of the Smolenskaya Oblast Municipal Services Administration, the Kiev Water and Sewage Administration, the Gomel' Association for Operation of Heating Boiler Plants, the Pavlodar City Streetcar Administration, the Shuvelyan Flower Raising Sovkhoz of the Azerbaijan SSR, and others came up with a patriotic initiative--that of completing the plan for 4 years of the five-year plan by the 62nd anniversary of the Great October Socialist Revolution on the basis of maximum utilization of production reserves.

The collectives of the housing and personal services enterprises, organizations, and ministries of the republics are turning special attention this year to introducing the best experience and progressive forms of labor and production organization into the sector, to reducing unproductive outlays, and to economizing on fuel, electric power, and water by improving efficiency and eliminating mismanagement.

Improvements are also being continued on the organizational forms of housing administration, the material-technical base is being made stronger,

the effectiveness with which materials and financial resources allocated for repairs and for operational needs are used is increasing, and the achievements of science, technology, and the best experience are being introduced more broadly.

Housing and municipal services are presently doing a great deal of work in the countryside. Their task is to create more conveniences for laborers in the fields and farms and to help reduce turnover in agriculture in response to decisions of the July (1978) CPSU Central Committee Plenum.

Much is also being done today by specialists of planning and scientific institutions to make the labor of workers in housing and municipal services easier, and to promote further improvement of its productivity.

The main objectives of the competition continue to be mobilization of the efforts of local councils of peoples deputies, housing and municipal services agencies and trade union organizations, industrial enterprises, transportation, construction and funding organizations, sovkhozes, kolkhozes, and the public at raising the standard of living in population centers and at developing all levels of the sector.

Presently the collectives of the municipal service sectors are developing measures in response to the CPSU Central Committee and USSR Council of Ministers decree "On Improving Planning and Intensifying the Influence of the Economic Mechanism on Raising Production Effectiveness and Work Quality."

By improving housing and municipal services to the public, and by completing and surpassing the plans for the fourth year of the five-year plan and the socialist pledges, we will promote an even greater rise in the material and cultural standard of living of the Soviet people.
[14-11004]

11004
CSO: 1821

UNIFIED CONSTRUCTION CATALOG APPEARS PROMISING

Moscow MOSKOVSKAYA PRAVDA in Russian 18 Jul 79 p 2

[Article by V. Maksimenko, Chief, Technical Administration, Main Architectural-Planning Administration: "Both Diversity and Standardization"]

[Text] The term "residential building made from parts out of the unified catalog" went beyond the limits of professional usage when Moscow's residents first saw the blue 22-story buildings at 45 Troparev Square. Soon after, 16-story apartment buildings that were just as beautiful but little resembling the former began to appear in Teplyy Stan, Orekhovo-Borisova, and other regions of the capital. A large multistory residential building with a uniquely shaped facade appeared on Mozhayskiy Highway, immediately imparting architectural expressiveness and a cosmopolitan appearance to the buildup in this area.

Despite the dissimilarity, all these buildings were assembled out of identical construction articles contained in a unified catalog of standardized articles.

The advantages of such buildings lie not only with their external impact. As Moscow's residents persuaded themselves, the apartments are distinguished by a more-convenient layout, and the buildings themselves have better operating qualities. Another important merit of the unified catalog is that use of standard plant-produced articles in buildings containing apartments with different layouts and configurations eliminated the need for having construction industry enterprises change the structure of the articles every time.

It is relatively easy to readjust production upon transition to construction of a new building series. House building combine plants receive a possibility for reducing the total number of brands of articles produced, and thus significantly increasing the quantity of those needed the most at the construction site.

The catalog offers extensive possibilities to urban builders. Using them, they can effectively build up new city territories with a consideration for modern demographic requirements. Architects enjoy a broader range of resources to work with.

But production of articles in the unified catalog is unfortunately being assimilated too slowly. Only 40 percent of the residential buildings now being built in the city are made from these articles. A number of units on the industrial conveyer have not been prepared yet for work according to the open-end standardization principle--that is, production of standard plant articles rather than residential buildings or individual blocks and sections. This is why Glavmosstroy [Moscow Main Administration for Housing and Civil Engineering Construction] has still not deleted the obsolete series 11-49-11 nine-story residential buildings, and why Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Moscow City Executive Committee] continues to build series 1-515 and 1-605 residences.

There are few resources yet for fitting residential buildings to areas differing in topography and conditions. Corner sections, inserts between buildings, and joining sections, which can be used to tie large-panel residential buildings together, are being assimilated too slowly by Glavmosstroy. House building combines have been deviating from the use intended for articles specified in the catalog. Imperfections in some planning concepts are also having an effect on the quality of new series of homes. In particular the number of parts in staircase-elevator units must be reduced to make them more universal. All of these shortcomings noticeably reduce the quality of Moscow construction and inhibit its complete transition to more promising methods. And yet the plan calls for this transition at the beginning of the 11th Five-Year Plan.

Much is being done to complete this task. Ways for reorganizing the combines of the large-panel house building association for work in the "addressed delivery" system, where sections of diverse shapes and content may be formed out of larger three-dimensional elements, are being developed through the joint efforts of planners, designers, and specialists of Glavmosstroy. Given just the production possibilities of House Construction Combine No 2 alone, this progressive form of construction could be used to assemble from 15 to 25 different sections. The new delivery system will make it possible to diversify the architectural expressiveness of urban buildup.

The article assortment for large-panel construction based on the open-end standardization system has also been developed for enterprises of Glavmos-promstroymaterialy. The Krylatskiy construction project will be its first test. Residential buildings differing in stories and configuration are to be built here. All ground floors are to be nonresidential. The architects intend to capitalize upon all the advantages of the local topography and create a unified ensemble of multisectional residential buildings and cultural-personal facilities.

The unified catalog is becomming a synonym of progressiveness not just in housing construction alone. Unified articles are occupying an ever-stronger

place in construction of cultural and personal facilities, and in engineering and transportation structures. Seventy percent of all facilities are now being erected out of parts in the catalog.

But even here we cannot avoid difficulties. The frame-and-panel system, which is distinguished by higher material content and complexity, is the structural basis of such facilities. The task now is to gradually switch to use of more-advantageous large-panel structures when building schools, nursery schools, dormitories, hospitals, hotels, and other facilities.

Specialists of Moscow's scientific research and planning institutes have developed standard plans for such buildings, and builders have already started erecting the first schools and preschool buildings in Troparevo, Vykhino, and Ivanovsk. These are just a few of the addresses of new construction sites distinguished by handsome architecture and convenient space planning. Use of large-panel structures in hotel buildings may be called successful. The first experience in building the high-rise Salyut Hotel in Troparevo persuades us of this. But more-economic and up-to-date concepts must still be sought for erection of dormitories, hospitals, vocational-technical schools, and other buildings out of such structures. It is very important to "dovetail" large-panel parts with frame-and-panel parts.

Despite a certain economic disadvantage, frame-and-panel construction will go on in Moscow. It is difficult to do without such buildings in the reconstruction of the city's center, in development of territories that are important in urban respects and typified by complex topography, and in crowded districts, and in erection of buildings for scientific research and other institutions "stuffed" with complex production equipment. This is why the frame-and-panel section of the unified catalog will retain its significance in construction practice. But it must supplemented by a number of articles, to include engineering equipment, some of the components must be enlarged, and the assortment must be produced in more-satisfactory quantities. It is important to find concepts which would make it possible to reduce the material content of buildings even more.

The industrial buildings section of the catalog has still not been finished. The need for it arose a long time ago. It was then that the Moscow Institute of Industrial Planning was established. In addition to creating structures for industrial facilities, its specialists must develop systems of girderless ceiling-floors suited to structures of different purposes. Their universality must permit their use in refrigerated warehouses, food industry enterprises, and some cultural-personal facilities.

The first expressive new construction projects that have appeared in the city provide the grounds for asserting that transition to erection of buildings out of parts in the unified catalog raises the quality of the facilities, makes it possible to create beautiful, adequate homes and convenient apartments, and offers room for use of original planning and architectural concepts. Accelerating this process is one of the main concerns of planners, construction industry workers, and builders.
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CONSOLIDATED CONSTRUCTION BRIGADE EXPERIMENT RESULTS DISCUSSED

Moscow STROITEL'NAYA GAZETA in Russian 24 Aug 79 p 2

[Report by S. Volkov (Vinnitsa) of round-table discussion with representatives of construction and installing subunits of Vinnitspromstroy: "An Effective System and Standard Confusion"]

[Text] Beginning in January 1977, when conversion was made to the new procedure for planning and for industrial-operations outfitting on the basis of the consolidated brigade, Vinnitspromstroy [Combine for the Construction of Industrial Facilities in Vinnitskaya Oblast] worked exceptionally stably. It fulfilled the plan for construction and installing operations for 2½ years under general contract by 100.3 percent, and, for work by its own forces, by 100.1 percent. The goal for volume of construction commodity output also was covered.

However, the results could have been still better if the combine had not run a fever this year. Testimony to that are the results for the first 7 months. Vinnitspromstroy did not cope with the goals for construction and installing work volume and for labor productivity.

This could not help but alarm those who follow the Vinnitsa builders, who introduced the progressive system. The SG [STROITEL'NAYA GAZETA] editorial office, which, from the moment of birth of the experiment, constantly supported and propagandized it, sent its correspondent to Vinnitsa for a visit in order to clarify the situation on the spot.

Brigade leaders were gathered about a "round table" at the combine. Why them? Because it is right in the low-level collectives that the fate of all plans is decided. Representatives of all Vinnitspromstroy construction and installing subunits took part in the discussion.

Correspondent: Obviously, the discussion must begin with planning, because the success of a matter is determined to a great extent by realistic, balanced and stable plans.

Ye. Mytnik: At our combine all the brigades have an annual workload plan (and not a task, as before). Everything is in it: the facilities to be built, the amounts of work and the amount of materials and machinery needed, and calculations were made for labor productivity, cost, wages and so on. What cannot be done with such a plan! The work can be well-organized and the engineering preparation can be performed in good time--in brief, one can look into the future with open eyes.

I consider that the Vinnitsa system for planning and industrial-operations outfitting based upon the consolidated brigade is ideal.

Correspondent: Is there not any weakness here? For the builder's life is far from ideal.

Ye. Mytnik: No, the system is flexible. The whole question is not to compel it to "spin around" constantly in an extreme regime, as happened this year. The combine is in a fever as never before. I'll say! The Ukraine's Minpromstroy [Ministry of Industrial Construction] added a growth of about 20 percent to the plan over last year. These same percents are not hanging in the air but fell into brigade plans.

A. Gel'man: It is not even the fact that the plan is large. Something else is bad: in planning growth in the plan UkSSR Minpromstroy did not consider the circumstance that the "increment" was not, in my view, completely supported by equipment and resources.

The Vinnitsa motor pool's machinery fleet is the oldest in the Ukraine, at least in our ministry's system. Combine managers say that the republic's Minpromstroy appears to be reequipping Vinnitspromstroy. But where are they, the new machines?

Meanwhile, we see that everything is old. Vehicles that are out of order go out onto the line, and there are too few vehicles. Let us add here drivers'-discipline violations and idle time during unloading (which conceals sins, and cases do occur, although there is a strict procedure: the brigade has to drop all work, but not under any pretext does it hold back the transport). Thus it also happens that the schedule for round-robin freight deliveries, which have been coordinated at all levels and have been adjusted down to the minute, is violated. And the brigade is idled.

A. Azler: Neither does our construction industry "stretch out" additions to the plan. The capacity for mix is not adequate. An additional unit still is only projected.

Ye. Gavrilok: I add that the mix runs to very poor quality. It happens that we plaster, then the painters who come in after us drip. The damage has to be corrected. We expend labor unproductively, we lose time, yet the deadlines in the contract are rigid.

V. Prushinskiy: The situation is no better either with deliveries of reinforced concrete. It is the usual picture: panels and trusses are brought up but there are no columns. We cannot "undertake" thousands of rubles' worth of the planned work because of this, and although the parts are handy here, they block up the whole construction site.

But here it is the same as with the mix, only there was not agreement on the shortage of capacity. The ZhBK [reinforced-concrete structure] plant's capacity is 100,000 cubic meters, but it has been planned that the combine will produce 110,000 cubic meters in 1979. Reequipping the plant was considered. But Vinnitsa's Remstroydormash [Plant for the Repair of Construction and Road Machinery] of Ukrainian Minpromstroy sent barely a tenth of the new tooling. And the combine is short about 9,000 cubic meters in the prefabricated reinforced concrete that it receives.

Correspondent: We, it seems, are still probing one topic of the conversation--the supplying of materials and equipment. Believe me, it is strange to be hearing this from you. Under the Vinnitsa system, this simply should not be. It turns out that your UPTK [Administration for Industrial-Operations Outfitting] is being praised for nothing?

A. Azler: The UPTK has nothing to do with it. If we have something in storage, then you can be assured that if there is an interruption in the daily schedule of deliveries to the brigade, the administration will the next day "beat out of them" everything that is necessary.

S. Pavlovskiy: Because of the fact that the materials do not arrive at the UPTK in time, the schedules for supplying the brigades this year are constantly being violated. Nearly all the material arrives at the brigade at the end of the month. There is a crush, and crash work! We will "dig out" the plan with our teeth if things go well, of course. But we have ten-day planning! What's the program good for, if there's nothing to it but paper?

It is especially bad with metal and lumber. We approach the administration about how we signed the contract agreement together, and they answer us: "The metallurgists did not deliver seven freight cars of rolled metal from Krivoy Rog, Yenakiyevo and Makeyevka." Is it possible that there is no way to get satisfaction from them?

Things are entirely bad with lumber. You work with what there is. With birch and aspen? You can break a panel of it with your hands, but they require eight-fold use out of it from us.

Honestly, you lose heart. It's not enough that we fail to introduce facilities, we also lose greatly in earnings. Last year about a third of the total pay was made up of bonus payments, but this year not a kopeck.

Ye. Gavrilyuk: That is true, wages have fallen. And we don't see days off.

A. Gel'man: We installers also have forgotten the time when we did not work on a Saturday, and we constantly catch Sund . This is how

interrupted deliveries have to be compensated for. If it is considered that the work goes on in two or three shifts, then it is not difficult to guess what kind of a life brigade leaders have.

Correspondent: What do the skilled-worker brigade leaders say?

A. Azler: It seems to me that, having become a brigade leader, I have become a skilled worker to a greater extent than before (if the words "skilled worker" are taken in the broader sense). Prior to conversion I had, if one might call it that, an indirect relationship with brigade affairs. Right now, of course, an additional load has appeared. For example, I have to be engaged in earnest with living conditions on the job and with work safety practices.

But then it became easier to execute my schemes. Before, I had to deal with the brigade through an intermediary--the superintendent, since, as a skilled worker, I had no authority then. Something inevitably was lost because of a lack of understanding, differences in outlooks on one and the same problem, and, of course, because of simple indiscipline. Right now I have direct contact with the brigade.

Correspondent: You are, consequently, satisfied with your new status?

S. Pavlovskiy: After all, now I receive more than 200 rubles, while previously I had to be satisfied with guarantees of 150, as a skilled worker.

A. Azler: That's not the end of the business! But the main thing is that the satisfaction is greater, because I participate directly in brigade matters, that is, within the system. I will not say that the engineering work has increased. But then the solutions that I have adopted have become more efficacious by far.

Correspondent: Actually, we are analyzing here the activity of all elements of the Vinnitsa system. In that case, let's speak about the interrelationships with subcontractors and other participants in the construction process.

S. Pavlovskiy: All the brigades, both general contracting and subcontracting, are linked up by a system of agreements about mutual obligations. I have, for example, under general contract, 2.2 million rubles' worth of construction and installing operations, but carry out only 670,000 rubles' worth of it with my own forces. So you can judge how my brigade depends upon the subcontractors, and they upon us. I consider that higher subcontracting organizations should introduce the Vinnitsa system.

Correspondent: What kind of responsibility does the administration bear for the violation of contractual obligations?

V. Bondarenko: None at all. In the situation described--moral.

Correspondent: And you?

V. Bondarenko: I get hit with the ruble.

Ye. Mytnik: Let's say that engineering preparation enters into the administration's responsibility. As a whole, it must be said straight out that matters are not going badly here. But it happens, and often, that the jobs are not provided with a full set of technical documentation. We request it. And they tell us that the designers and the clients are at fault. Actually, the current procedure for submitting technical documentation is such that it is difficult to expect improvement. The client is obligated to issue us a full set by 1 September. Well, let's suppose he manages, he has given the full set, which happens rarely. And then? Indeed, not enough time is left to work out a contract with this documentation. As a rule, we do not manage to sum up the requirements for resources in accordance with the design and the budget estimates. From this there is uncertainty when defending orders for material resources. How can you accuse the combine managers about this? It is a complicated question.

Correspondent: In summing up what has been said, the conclusion can be drawn that the Vinnitsa system is no longer operating?

A. Azler: It's nothing of the kind! The impression of hopelessness prevailed because of the fact that, with one voice, we wanted it to be understood: it is better that it be accepted as the norm, but the shortcomings are annoying, and they leap to the eye.

Correspondent: But indeed, the combine has not by far carried out the plan for the first 7 months for all the basic indicators.

V. Bondarenko: But still the system is good. It is advantageous to us and to the state. Alll levels must engage in developing, deepening and disseminating it.

> Actually, the Vinnitsa system is alive and effective. However, the confusion that is to be expected in the most orderly construction organization is affecting it negatively. As to eliminating it, it stands to reason that it is necessary to speak not with brigade leaders, who have accepted the innovation wholeheartedly and who believe in it, but with supervisors of much higher rank, right up to republic and Union industrial-construction ministries.
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> Above all, the lack of balance with the possibilities of the combine's plans for 1979 clearly provokes perplexity. It is impossible to justify the inclusion in the program of facilities that are not provided with technical documentation, and this, incidentally, is entirely prohibited.
>
> Unfortunately, based upon Vinnitspromstroy's example, once again one must be convinced of how harmful it is to forget one of the underlying principles for the conduct of any scientific experiment--the purity of the experiment. One

must be quickly concerned about eliminating deficiencies that hinder the wide dissemination of the Vinnitspromstroy experiment. It is all the more urgent since a number of measures that have enormous value in fulfilling the decree of the CPSU Central Committee and the USSR Council of Ministers, "The Improvement of Planning and Strengthening the Effect of the Economic Mechanism on Raising Production Effectiveness and Work Quality," are being applied with success at the combine.

11409
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MISMANAGEMENT CUTS KRICHEV CEMENT PLANT PRODUCTION

Moscow STROITEL'NAYA GAZETA in Russian 23 Sep 79 p 3

[Article by O. Vengerenko, SOVETSKAYA BELORUSSIA correspondent; V. Shan'kov, senior editor of Belorussian SSR radio; and N. Ivanov, STROITEL'NAYA GAZETA correspondent (Krichev-Minsk): "The Combine's Good Name"]

> [Text] For more than 10 years the Krichev Slate-Cement Combine was among the industry's leading enterprises. It repeatedly took prize places in republic and All-Union socialist competition. But then, the year before last, it suddenly did not cope with the plan. Last year it worked below average. No change for the better has been noted even now--in the first 7 months of the year it fell short by 130,000 tons in shipments of cement to customers.
>
> What has happened to one of the best collectives of the BSSR [Belorussian SSR] Ministry of Construction Materials Industry?

"You are curious as to why we rolled downward? Because we are not in a position to go upwards," raw-materials department mechanic V. Tsimbalist spoke up with bitterness. "I've been at the combine for more than 30 years and this is perhaps the first time I've observed such a situation. A chain or some other part of the unit flies off, let's say--not a permanent part--this means that the part that has malfunctioned must be removed quickly and sent for repair, if it can be repaired, and a spare part put in its place. We cannot do this because there is no kind of replacement inventory of rapidly wearing items. And so the machines stand still because of some kind of a little broken screw or wheel, while someone thinks of something. If you look at some of the drive components of the grinding units, they will be continuous welds and rivets...."

"Yes, our work weapons have gradually been wearing out," states deputy combine director N. Dudyko. "And it is not surprising. In the transport activity, for example, equipment that was produced in 1949-1950 is being operated. Many trucks, earthmoving machines, bulldozers and cranes have

long been subject to write-off. But how can you get along without them? They do not allocate new ones. And so we mend utilizable scrap. True, it makes little sense: we repair it in a day, and we work it for an hour. The industrial equipment also has aged--both physically and technologically. For the last reconstruction was finished in 1963. Since then there has been no kind of essential renewal."

"There has been more than enough time. During this time our colleagues in the RSFSR, the Baltic and the Ukraine have managed to do much. In particular, the Ul'yanovsk, Bryansk and other plants have replaced imported grate-bar coolers that had served their time with domestic Volga-50S models that are more reliable in operation. So what are you waiting for?" we ask.

"We also have tried to modernize," chief of the combine's production-equipment section A. Yevseyenko joins in the conversation. "We wanted to lengthen the 76-meter furnace to 150 meters, to expand the clinkering zones in two units, as was done in Ul'yanovsk, to replace the cooler and the electrostatic precipitators....Since 1973 we have been knocking on our ministry's door with these questions, but...."

"Perhaps you knocked gently?"

"But why roar?" say the Krichevites in surprise. "Back during the last five-year plan the Ministry of Construction Materials Industry converted, for the first time in Belorussia, to the two-tier system of management, in order to get closer to production. That means, in order to find out our needs."

The logic was not without foundation. The more so since such enterprises in the BSSR can be counted on the fingers of one hand, the republic obtaining one-fourth of the cement consumed directly from Krichev. How did the ministry "examine" such a substantial supplier without hearing its call for help?

"Superconvincing" arguments on an industry-wide scale were cited: the industry was started with the brick industry, and until recently there was no real cementmaker in a supervisory post in the ministry. Yes, and funds were limited....

Enough! In order to master the ABC's of management, it is not necessary to be a cement-making specialist. Every engineer knows that an enterprise cannot function fruitfully without systematically conducted overhaul and renewal of fixed production capital.

Now about the funds. Yes, there are difficulties here. But, it turns out that this is not an unresolvable problem when the initiative appears from above. The ministry's specialists planned to use in cement production a spray dryer that had proved itself well in the ceramics industry, and the money and metal were [illegible] But the trouble was the fact that the

originators of this innovation that promised great advantages and which obtained All-Union recognition did not achieve the intended end in Krichev. The nozzles clogged up and the diaphragm pumps failed....The units see the repairmen more often than they do the operators. And it is no accident that the dryer gives only half of what is expected of it--50,000 tons of binder per year instead of 100,000. The plan, by the way, has been figured at half of capacity.

One can and should look at the problem of funds from another point of view. Each year about a percent of the cement produced is squandered. And this is neither more nor less than 13,000 tons. Multiply this by 16--the number of years that have elapsed since the date of the last reconstruction--and you obtain, in round figures. the total losses of a scarce product, the cost of which, with interest, will pay for the most modern precipitators and dust collectors and for the renewal of the industrial equipment.

Well, and what did the enterprise's managers and specialists do to improve the state of affairs? For there are many questions that do not need to be referred to the ministry. They must be resolved on the spot with local efforts.

They tried. True, fairly originally.

Judging by current reporting data, back in the last week of May cement production took a sharp decline--only 8,460 tons of the planned 27,300 tons (31 percent) were produced. However, analysis of the daily tasks carried out, and also of clinker and electricity consumption, indicated that output had been reduced by 9,000 tons. It turned out that people's controllers were making a check then, and the responsible workers needed this intrigue to conceal earlier boosted reports. Thus, in April, for the first time in 3 years, the combine fulfilled the production plan by 100.3 percent, the sales plan by 101 percent. Actually, these indicators were 98.3 and 98.2. The managers consciously distorted state reporting and, in violation of USSR Central Statistical Administration instructions, the missing tons of cement were reported as having been expended on their own needs.

Also concealed were other unattractive facts, particularly the shipping of cement without orders to various organizations under the principle: "You do for me, and I'll do for you." In the past year and 5 months of this year, 2,073 tons of cement were bargained away on order of the former director I. Moiseyenko, 698 tons on the instructions of chief engineer A. Potapchik, and 2,625 and 1,242 tons, respectively, on the instructions of deputy director N. Dudyko and A. Polonskiy.

At the start of July almost 12,000 tons of cement, on the whole, turned up missing. No one knows where it was disposed of. A mystery, and that's that.

No, it was not at all the forces of the other world. The most elementary mismanagement is to blame. The presence of raw materials is not verified, and production inventorying is a formality. Computations for determining the amount of cement in silos are not confirmed by anyone, and there are no standards documents. The monitoring reweighing of loads that are in transit and of those that are picked up by customers is not practiced. Loading and unloading work is done as poorly as can be. In the first half of the current year alone, the combine paid the railroad 43,400 rubles in fines for excessive idle freight-car time.

Nevertheless, neither is it possible to excuse the BSSR Ministry of Construction Materials Industry, which was deaf and dumb to the needs of the Krichev Slate-Cement Combine, tried to undertake as much as possible and to furnish less, and gave no attention to the actions of its managers. People's control, which made a detailed check at the enterprise, noted especially in its report that the combine's officials were not candid in their explanations, tried to evade responsibility, and busied themselves with shuffling papers. An extremely alarming symptom.

When such facts received publicity, after checking, some measures began to be taken to correct and to normalize the situation. If only this had been done earlier!

11409
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PROBLEMS AT THE KRICHEVSKIY CEMENT ROOFING COMBINE

Minsk SOVETSKAYA BELORUSSIYA IN Russian 6 Sep 79 p 2

[Unattributed article: "And Are Sliding Down"]

[Text] For over ten years, the Krichevskiy Cement-Roofing Shingle Combine was among the advanced enterprises of the industry. It won placed many times in the all-union and republic socialist competition. But the year before last, it suddenly did not cope with the plan. It operated below average last year. Nor are any shifts for the better noted now -- it had a shortfall of 130,000 tons of binders.

What happened to one of the best collectives of the Ministry of the Construction Materials Industry of the Belorussian SSR? Why did it fall back from the position it won?

These and similar questions were asked by participants in the inspection raid on this enterprise.

"You are curious about our sliding down? "Because we are not able to move upwards," stated V. Tsimbalist, mechanic of the raw materials shop, bitterly. "I worked for over 30 years in the combine and see such a situation for the first time. A chain or some other part breaks in a machine -- they cannot last forever -- it is necessary to remove it to have it repaired if possible, and replace it with a good part. But we are not able to do that. We have no replacement fund for parts that wear out rapidly. So a machine stands idle due to the breakage of some screw or wheel, until somebody thinks of something."

"Yes, our labor tools wore out," -- stated N. Dudyko, deputy director of the combine. "No wonder. Our transportation, for example, uses equipment made in 1949-1950. Many trucks, excavators, bulldozers and cranes should have been written off a long time ago. But what can one do without them? So far, they are not giving us new ones. So we have to patch scrap material. We work a whole day to repair something -- and it operates for an hour. Technological equipment has also become 'aged' physically and is obsolescent. The previous modernization was completed in 1963."

"This is a very long time. During this time your colleagues in the RSFSR, the Baltic and in the Ukraine have accomplished great achievements. In particular, the Ul'yanovskiy, Bryanskiy and other plants successfully replaced worn out imported grate bar refrigerators with domestic "Volga-50S" models which are more reliable in operation. What were you waiting for?" They were questioned.

"We also tried to modernize," said A. Yevseyenko, chief of production-technical department of the combine, joining the conversation, "we wanted to lengthen the small furnaces to 150 meters, expand the sintering zone in two units, as was done at Ul'yanovsk and replace the refrigerator and the electric filters ... Since 1973, we have been knocking on the doors of our ministry, but..."

"Perhaps you did not knock hard enough?"

"Why roar?" -- replied the Krichevskiy people. "The Ministry of Construction Materials Industry was first in Belorussia in the past five-year plan period to change over to a two-step management system in order to be closer to production. They must know the needs of our plant."

There is some logic in that. Especially, since there are only two cement plants in the BSSR. The republic receives a quarter of the cement used from the Krichev Plant. Why did the ministry not hear the call for help of the Krichev people?

Today, everybody blames the lack of money for modernization. Yes, there are difficulties. But it would seem that this is not such an insoluble problem when there is initiative "from the top." Ministry specialists thought of a spraying dryer, which acquitted itself in ceramic production, for use in cement production, and found the money and metal for it. But, unfortunately, the authors of this innovation that promises great advantages and is acknowledged in the entire union, were unable to finish their conception at Krichev. The injectors get clogged up and membrane pumps foil... Repairmen bustle around the machine more frequently than the direct operators. The dryer produces only half of what was expected -- 50,000 tons of binders instead of 100,000 tons. Yet, the plan was based on the full capacity. That is how, at times, extreme haste reduces sharply the efficiency of facilities acquired by a great amount of labor and discredits very brilliant innovating ideas, proposals and developments.

The problem of money must be considered from another viewpoint. About one percent of the produced cement flies out the combine pipe, in the lateral sense of the word, every year. This amounts to 13,000 tons. Multiply that by 16, the number of years since the last modernization, and you get a round figure of losses of a scarce product, whose cost would

more than cover not only the best filters, dust collectors, technological equipment, equipment, but also the building of another similar enterprise. And if you take into account the contamination of the environment?... Truly, we are kopeckwise and ruble-foolish.

What did the enterprise specialists and managers of the enterprise do to improve the situation? Are not there many problems that need not be referred to the ministry which could be solved locally?

Combine managers now claim that they have numerous measures and plans. But most of the basic unsolved problems of a technical and organizational nature are not considered by the plant services. How can one explain the fact that the organizational-technical plan lists only eight points? Moreover, the problems are being solved rather peculiarly.

Judging by the data of operational accounting, cement production in the last week of May dropped sharply -- only 8460 tons were produced as against 27,300 tons per plan (31 percent). However, an analysis of daily targets, as well as consumption of clinkers and electric power, indicated that the output was reduced by 9000 tons. As found by people's inspectors, machinations were used by responsible workers to cover-up former additions. Thus, in April, the combine reported that for the first time it fulfilled the production plan by 100.3 percent and the sales plan by 102 percent. Actually, these indicators were 98.3 and 98.2 percent respectively. The managers knowingly distorted the government accounting and violated the USSR TsSU [Central Statistical Administration] and added to the respective curves the lacking cement tonnage, supposedly for their own needs.

Other not so pretty facts were uncovered. In particular, the shipping of binders without orders to various organizations in return for a return courtesy, i.e., on the principle: "you scratch my back and I will scratch yours." Last years and the five months of this year, on his instructions, I. Moisenko, the former director, traded 2073 tons, A. Potapchik, chief engineer traded 698 tons, N. Dudyko, deputy director and A. Polonskiy, 2625 and 1242 tons respectively. These operations were frequently done to the harm of the interests of legal consumers -- with transportation facilities designated for them directed to different addresses. Last year, 39 RR cars were diverted in this manner and in five months of this year -- five RR cars.

Here is another point. At the beginning of July, almost 12,000 tons of cement were unaccounted for. Where did they go?

The fault lies in elementary poor management. The check of the presence of raw materials is not done, inventories are checked formalistically. Calculations for determining the amount of cement in the silos are not approved by anybody and are not norm documents. Transit freight shipments are not monitored and their own transportation facilities are not used. Materials handling is done badly. In the first half of the

current year, the combine paid the RR 43,400 rubles fine for excessive idle time of cars.

As we can see, much could be done by the managers and the partkom of the combine to put order into their own business with their own forces. Moreover, this does not require additional resources.

The BSSR Ministry of the Construction Materials Industry cannot be excused for remaining deaf to the needs and difficulties of the Krichevskiy Cement-Roofing Shingle Combine. For a long time, it tried to take as much as possible and give as little as possible and it weakened the monitoring of the actions of the enterprise managers. Workers of the People's Contral Commission of the republic who made a detailed check at the combine noted especially in their report that managers perpetrated document juggling. This is a very disturbing symptom.

When such facts were publicized after the raid and checks, they began to take energetic measures here on correcting the situation. If only this had been done before! A sickness should be prevented. It is more difficult to heal it.

2291
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WORLD LEAD IN GLASS-PIPE USE IN CHEMICAL, OTHER INDUSTRIES CLAIMED

Moscow STROITEL'NAYA GAZETA in Russian 16 Sep 79 p 3

[Article by I. Mekryukov, Deputy USSR Minister of Installation and Special Construction Work and USSR State Prize Winner: "More Reliable Than Metal"]

[Text] It is difficult to overestimate the technical, economic and social significance of intensification of the drive against corrosion. Damage to industrial equipment and pipelines hinders the growth of production indicators and affects adversely the quality of output produced in many areas of the national economy. At chemical industry enterprises alone, labor expenditure for anticorrosion work is 16 percent of all the labor spent servicing equipment and pipelines.

And if glass comes to replace metal? Glass, as is known, possesses a rare combination of effective properties. These are: high resistance to corrosion, impermeability to gas, inertness with respect to most substances, and, of course, longevity. Moreover, glass competes successfully with all traditional and new materials with regard to raw-material reserves and production costs.

In recent years the USSR has surpassed many countries, among them the USA, England, the FRG and France in the production and utilization of glass pipe. This has been made possible by the comprehensive solution of many problems. First of all is the creation of a new glass composition that possesses high resistance to the action of various acids and alkalies and increased heat resistance. Research and development by scientists was consummated by the creation of highly productive technology and equipment for manufacturing glass pipe, together with the fittings. The production of joining, separating and mounting pieces for pipelines, using progressive materials--glass-fiber reinforced plastic, fibers, aluminum with foamplastic coating, and so on--has been organized.

The formation within the USSR Minmontazhspetsstroy [Ministry of Installation and Special Construction Work] system of a specialized organization that does the design, outfitting, installation and technical servicing of glass pipelines in all branches of the national economy has helped in the large-scale introduction of glass pipe into the national economy.

During the Ninth Five-Year Plan more than 22,000 km of glass pipe were installed in the national economy. This enabled about 160,000 tons of metal pipe and 430 million rubles to be saved. It is planned to bring annual production and introduction of glass pipe to 12,700 km, or almost twice that of the current year, by the end of the Eleventh Five-Year Plan.

The conduct of some work, including that for protecting such pipe from static electricity, has enabled technical-standards documentation to be prepared and the design, installation and operation of pipelines and apparatus made of glass to be regulated with precision.

For the area of utilization of glass pipe is being expanded by the year. It is being used not only as chemical-process pipeline but also as an element of heat-exchange apparatus. Brine cooling banks in various storage facilities, heating devices for greenhouses, trickle coolers and low-temperature boilerroom area heaters that are made of glass pipe are operating successfully and effectively at enterprises of 30 branches of the national economy.

For example, the introduction of glass air heaters on two units alone of the Karmanovskaya GRES has enabled about 8,000 tons of liquid fuel to be saved annually. And this is three trainloads of mazut!

At the Ufa Chemical Plant 50 km of the existing glass pipeline have enabled not only stainless steel pipe to be replaced but also the quality of the output obtained to be raised. At the All-Union Cardiological Center of the USSR Academy of Medical Sciences, which is under construction in Moscow, more than 3 km of pipeline for the disposal of aggressive substances will provide for the necessary cleanliness in the premises. Dozens of such examples can be cited.

For purposes of increasing the reliability of glass pipeline and raising its operating parameters, USSR Minstroymaterialov [Ministry of Construction Materials Industry] and USSR Minmontazhspetsstroy specialists have in the past 2 years worked on the creation of pipe with protective coverings. More than 100 km of such pipe already are in operation at a number of chemical-industry enterprises.

The fact that practically all foreign firms that are working in this area are striving to achieve scientific, technical and economic collaboration with our country can be viewed as a tribute to the merits of Soviet glass workers and installers.

11409
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ELECTRONICS AND PRECISION EQUIPMENT

USE OF INDUSTRIAL ROBOTS TO INCREASE GREATLY

Moscow PRAVDA in Russian 30 Aug 79 p 2

[Article by I. Makarov, corresponding member of the USSR Academy of Sciences and chairman of the Council on Theory and Principles of Robots and Manipulators, USSR Academy of Sciences: "Robots--Today and Tomorrow"]

[Text] When speaking of robots, specialists have used verbs in the future tense even recently. Now the present tense has come about: the era of robots has already set in. It is true that so far it is principally a matter of the simplest machines of this type--industrial robots or, as they are still called, automatic program-controlled manipulators.

An industrial robot is a multi-linked, mechanical arm, the movement of which is controlled by a computer--electronic, as a rule. A manipulator like that moves similar to a human arm, and this opens up the widest possible production possibilities.

First, industrial robots can replace people in shops that are already operating and thus can promote the automation of all production segments without serious reconstruction of them.

Second, a practicable prospect is opened for automating those works for which it was not possible or unsuitable to automate by traditional means and to create segments, shops and entire plants which practically operate without people, but which are capable of flexible changing over to the production of new products. For a number of the leading branches of industry, this has a significant meaning: labor productivity rises sharply and work coefficients and equipment interchangeability increase.

Third, in replacing people, industrial robots make it possible to substantially reduce the deficit of labor resources.

Robot engineering has been making advances rapidly in many countries in recent years. Today, the world-wide stock of industrial robots exceeds 13,000 units. They are successfully employed in stamping, forging and pressing,

and machine processing works, and their use is beginning in the foundary and welding sectors in heat treatment and coating application. According to the predictions of specialists, in the next ten years in the developed countries of the world, robots will replace the main bulk of people who are engaged in monotonous, harmful and difficult, as well as subsidiary, operations.

The extensive distribution of industrial robots has a special significance for our socialist society inasmuch as they not only provide an increase in labor productivity, but also free a person from dangerous, unhealthy, heavy and monotonous work and enables it to be transformed into something creative. They also promote eradication of the essential differences between mental and physical labor.

The 25th party congress established a goal to organize the serial production of automatic program-controlled manipulators in our country. In the Soviet Union for the past three years, more than 1,000 general-purpose and specialized industrial robots have been produced. By the end of the five-year plan, their stock will exceed 5,000 units and the capability for producing more than 7,000 robots a year will have been created.

This surpasses the planned goals. Output of such machines falls behind the demand for them, however. By 1980, according to the ministries' data, the requirement for robots will be 26,000 units, and in the near future, will exceed 100,000.

Some 50 scientific-research and planning and design organizations of various USSR ministries and departments are involved, some way or another, in the development of automatic manipulators. Based on the conclusions of inter-departmental testing, 16 models have been recommended for serial production. They are already being produced and successfully operated. In their performance, the "Cyclone-3B", "Universal-5", "Universal-15M", PR-10, TsRV-50, PRTs-1, MP-7 and "SPRUT" domestic industrial robots are not inferior to the better foreign models.

The effectiveness of using this new means of automation depends on how thorough preparation in the enterprises has been for encountering robots. The matter is the resolution of an entire complex of problems, starting from an analysis of the technological features of the operations being transferred to robots, and ending with personnel training. The experience of the Kovrov Machine Plant--a pioneer in our country in the extensive introduction of robots--offers considerable interest in this regard. At the KMZ, where 60 industrial robots of the "Cyclone-3B", "Universal-15M", and Universal-5" models operate, two works were selected for starting: stamping and machine processing. In the process of introducing robots here, a systems analysis was conducted of all the aspects of the works, although social problems were not forgotten. The results of the collective's efforts in 1978 were: labor productivity increased three-fold on the average in the robotized

operations (by five- to six-fold by individual sections); labor intensity of jobs went down by an average of 43%; about 100 people were released. The annual economical gain exceeded 300,000 rubles.

Robot engineering, as a new scientific and technical trend, and robot construction, as an industrial branch flourishing on this basis, are in the first stage of formation. It is already clear, however, that practically all industrial ministries will have to participate in close coordination in developing and producing robots since this is typically an inter-branch problem. They can render considerable assistance locally to the new work.

Growth of robot engineering is being fulfilled on the basis of a unified works program of the USSR State Committee for Science and Technology encompassing various branches and departments, including the USSR Academy of Sciences and higher educational institutions. The higher schools, which have made and are making a large investment in the formation and growth of robot engineering, have begun to train qualified engineers and scientific cadres for the new field. An academic specialty in robot engineering systems has been introduced in the MVTU [Moscow Higher Technical School] imeni N.E. Bauman.

Of course, not everything is going smoothly in the new and difficult work. The industrial robots being produced, and the control systems for them, are still expensive. The Minelectrotekhprom [Ministry of Electrical Equipment Industry] is not managing the task for developing and producing electronic appliances and special motors for mechanical arms. Consequently, the appearance of domestic electric manipulators is being delayed. The Minstankoprom [Ministry of Machine Tool and Tool Building] has not ensured the serial production of the necessary hydraulic and pneumatic equipment. The control units being produced do not have adequate reliability.

The specialists also have considerable to do in the area of developing the robots themselves. First of all, consideration ought to be given to the building and mastery of serial production of modular industrial robots as well as to increasing reliability, operating life, and rapid operation. It is necessary to broaden the scope of effort in developing overhead robots which permit a decrease in working area.

When planning and organizing joint actions, it is important to ensure unity of the successive stages from basic research to introduction. It is necessary to combine the solution of today's tasks with the extensive developments of scientific and technical research in the near and distant outlook; with the fundamental research in new development principles for robots and their control systems; as well as with the development of the latest engineering processes for which the use of robots is intended.

The most urgent of the long-range goals is the development of robots and entire complexes of manipulators which can replace people in heavy underground work, gas and dangerously explosive environments, under increased radiation, and in other extreme conditions. In the immediate future, the task will arise to transfer a number of construction and agricultural operations to robots.

Mobile robots for various functions and different environments which robotize transport systems will be important. In particular, the question concerns the automated control of tractors in carrying out agricultural work. A need is felt in new types of transport vehicles such as walking and wheeled-walking. They will be capable of overcoming obstacles too difficult for wheeled and tracked vehicles. In addition, they will damage nature significantly less, which is of no small importance, for example, in tundra conditions and forest exploitation areas. The development of underwater robots is becoming more and more urgent, since exploitation of the natural resources of the world's oceans will be difficult without them.

One of the immediate tasks is the improvement of control systems. Specifically, a control system primarily ensures versatility in a robot's "behavior" and the capability to "teach" it a number of different and complicated actions.

Closely connected with this is the extremely important problem of developing sensitized robots possessing technical vision and sense of touch. Required in this case are precise and reliable sensors for gauging various physical dimensions, and computing equipment built using an electronic computer or an entire system of electronic computers as a base. Related to this, a number of problems have come to the forefront regarding provision of algorithms and programming.

It must be noted that the appearance of new and improved models of robots does not at all imply that the simpler ones are going to "retire." By continually undergoing modernization, they all will retain their importance even longer.

In connection with the rapid growth in the area of robot use in the national economy, it appears the time has come to raise the question of substantially expanding robot programs for this problem in the next five-year plan. In these programs, one has to consider the requirements not only of machine building, but also of other branches of the national economy, in particular instrument making, the mining and metallurgical industries, and agriculture. It is necessary to provide for the development of completely automated shops and automatic plants based on industrial robots. The fundamental and applied research subjects of the institutions of the USSR Academy of Sciences, higher schools, and the corresponding ministries have to be more efficiently coordinated with the programs of the USSR State Committee for Science and Technology and the plans for producing new robots in order to encompass all the stages from research to introduction. It may be advisable to start with the view to develop robot engineering by specific courses which would encompass all the stages of solving the problems.

It is important to provide in advance for difficulties which the new and important work may encounter and to take all the measures necessary so that it does not come to a standstill. The development and introduction of robots into the various areas of human activity--an integral part of scientific and technical progress and the gigantic work of creating the material and technical basis of communism--depends on its rapid progress forward.

9047
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TAPE RECORDERS FOR 1979

Moscow GOVORIT I POKAZYVAYET MOSKVA in Russian No 31, 1979 p 19

[Text]

(a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k)

Число дорожек	Скорость магнитной ленты, см/с	Номер катушки (кассеты)	Время звучания, мин	Рабочий диапазон частот, Гц	Номинальная выходная мощность, не менее, Вт	Напряжение, В	Потребляемая мощность, не более, Вт	Габариты, мм	Масса, не более, кг	Цена, руб.
КАТУШЕЧНЫЕ Reel-to-Reel										
(1) ВЫСШЕГО КЛАССА СТАЦИОНАРНЫЕ С ПИТАНИЕМ ОТ СЕТИ										
(2)4	19,05 9,53	18	4×45 4×90	31,5—20000 31,5—16000	—	127/220	90	422×467×231	23,5	980
(3)4	19,05 9,53 4,76	18	4×45 4×90 4×180	40—18000 40—14000 63—8000	2×6	127/220	150	540×405×210 422×272×234	25 8,5	750 850
(25) II КЛАССА ПЕРЕНОСНЫЕ С ПИТАНИЕМ ОТ СЕТИ										
(5)4	19,05 9,53	15	4×33 4×65	40—16000 63—12500	2×6	127/220	50	450×372×170	12,5	346
(6)4	19,05 9,53	18	4×45 4×90	40—16000 63—12500	2×6	—•—	150	530×350×175	15	510
(7)4	19,05 9,53	18	4×45 4×90	40—16000 63—12500	2×5	—•—	70	450×408×192 422×272×234	15	490
(8)4	9,53		4×90	63—12500	2	—•—	50	414×350×165	11,5	220
(9)4	4,76 19,05 9,53	18 15	4×180 4×33 4×65	63—6300 40—16000 63—12500	2	—•—	50	405×372×170	11,5	280
(10)4	19,05 9,53 4,76	18	4×45 4×90 4×90	40—18000 63—12500 63—12500	2	—•—	60	432×332×165	11,5	299 260
(11)4	19,05 9,53	15	4×33 4×65	40—16000 63—63000	2	—•—	50	412×362×160	11,5	210
(12)4	19,05 9,53 4,76	18	4×45 4×90 4×180	40—18000 63—12500 63—6300	2	—•—	60	440×337×170	11,5	220 265
(13)4	9,53 4,76	15	4×65 4×130	63—14000 63—7000	2	—•—	55	390×335×180	11,5	265

[Key to Table]:

(a) Number of tracks;
(b) Tape speed, cm/sec;
(c) Reel (or cassette) number;
(d) Playing time, minutes;
(e) Frequency response;
(f) Nominal output power, no less than, watts;
(g) Voltage, V;
(h) Power consumption, no more than, watts;
(i) Dimensions, mm;
(j) Weight, no more than, kg;
(k) Price, rubles;

1. Highest class, nonportable, powered from the AC mains;
2. MAYAK-001-STEREO;
3. ?LET'-101-STEREO;
4. ROSTOV-102-STEREO;
5. KOMETA-212-STEREO;
6. ORBITA-204-STEREO;
7. YUPITER-202-STEREO:
8. ASTRA-207;
9. KOMETA-214;
10. MAYAK-203, MAYAK-205;
11. SATURN-201;
12. SNEZHET'-202, SNEZHET'-203 [below];
13. YAUZA-207;
14. Class III, portable, powered from the AC mains;
15. Class III, with self-contained power supply;
16. Class I, nonportable, powered from the AC mains;
17. Class II, portable, powered from the AC mains;
18. Class II, portable, with self-contained power supply;
19. Class II, portable, with universal power supply;
20. Class III, portable, powered from the AC mains;
21. Class III, portable, with universal power supply;
22. Class III, portable, with self-contained power supply;
23. Class IV, portable, with universal power supply;
24. Class IV, portable, with self-contained power supply;
25. Class II, portable, powered from the AC mains;

[1]) Accessory;
[2]) 31.5 - 20,000 Hz (at a speed of 19.05 cm/sec) for the "Rostov-102-Stereo"
[3]) Loudspeaker;
[4]) Playing time, in hours;
[5]) With independent power supply (powered from the AC mains from a separate power supply unit).

	(a)	(b)	(c)	(d)	(e)	(f)		(g)	(h)	(i)	(j)	(k)
					(14) III КЛАССА ПЕРЕНОСНЫЕ С ПИТАНИЕМ ОТ СЕТИ							
INEY-303	4	9,53	15	4×65	63—12500	2	127/220		40	376×355×140	9,5	140
SONATA-308	4	9,53	15	4×65	63—12500	1,5	—•—		45	381×299×162	9,5	180
NOTA-304	4	9,53	15	4×65	63—12500		—•—		45	355×325×140	9,5	106
EL'FA-332-STEREO	4	9,53	18	4×65	40—12500		—•—		45	470×310×160	12,5	220
					(15) III КЛАССА ПЕРЕНОСНЫЕ С АВТОНОМНЫМ ПИТАНИЕМ							
ROMANTIKA-304	4	9,53 4,76	13	4×45 4×90	63—12500 63—6300	0,8	12 (8×•373•); 127/220 •		10 •	320×270×90	4	180
					Cassette КАССЕТНЫЕ							
					(16) I КЛАССА СТАЦИОНАРНЫЕ С ПИТАНИЕМ ОТ СЕТИ							
RUTA-101-STEREO	4	4,76	МК-60	4×30	40—14000	—	127/220		40	440×262×162	8	517
					(17) II КЛАССА ПЕРЕНОСНЫЕ С ПИТАНИЕМ ОТ СЕТИ							
RUTA-201-STEREO	4	4,76	МК-60	4×30	63—12500	2×10	127/220			460×350×130	8	570
SONATA-201-STEREO	4	4,76	МК-60	4×30	63—12500	2×10	—•—		60	260×400×140	9,6	420
					(18) II КЛАССА ПЕРЕНОСНЫЕ С АВТОНОМНЫМ ПИТАНИЕМ							
VESNA-201-STEREO	4	4,76	МК-60	4×30	63—10000	2×3	12 (8×•373•); 127/220 •		30	357×224×100	4,5	385-30
					(19) II КЛАССА НОСИМЫЕ С УНИВЕРСАЛЬНЫМ ПИТАНИЕМ							
VESNA-202	2	4,76	МК-60	2×30	63—10000	1	9 (6×•373•); 127/220		10	296×276×81	4,2	224-30
					(20) III КЛАССА ПЕРЕНОСНЫЕ С ПИТАНИЕМ ОТ СЕТИ							
TONIKA-310-STEREO	4	4,76	МК-60	4×30	63—10000	2×2	127/220		30	360×210×110	4	272
					(21) III КЛАССА НОСИМЫЕ С УНИВЕРСАЛЬНЫМ ПИТАНИЕМ							
RITM-301	2	4,76 2,38	МК-60	2×30 2×60	63—10000 63—5000	0,8	9 (6×•373•); 127/220		7	245×252×72	3,8	150
					(22) III КЛАССА НОСИМЫЕ С АВТОНОМНЫМ ПИТАНИЕМ							
ELEKTRONIKA-311-STEREO	4	4,76	МК-60	4×30	63—10000	2×1	9 (6×•343•); 127/220•		8/10	350×265×95	4,0	289
ELEKTRONIKA-321	2	4,76	МК-60	2×30	40—10000	1	—•—			296×220×75	3,5	195-50
ELEKTRONIKA-322	2	4,76	МК-60	2×30	63—10000	0,8	—•—		10 •	315×225×90	2,5	165 166-80 167
PARUS-302	2	4,76	МК-60	2×30	63—10000	0,8	—•—		10 •	280×252×82	2,6	170
					(23) IV КЛАССА НОСИМЫЕ С УНИВЕРСАЛЬНЫМ ПИТАНИЕМ							
LEGENDA-404	2	4,76 2,38	МК-60	2×30 2×60	63—10000 315—3150	0,8	9 (6×•343•); 127/220		10 •	265×175×80	2,5	172-50
					(24) IV КЛАССА НОСИМЫЕ С АВТОНОМНЫМ ПИТАНИЕМ							
SPUTNIK-403	2	4,76 2,38	МК-60	2×30 2×60	80—8000 80—3150	0,3	9 (6V•A343•); 127/220 •		10 •	265×155×80	2,2	135

METALWORKING EQUIPMENT

LIMPING PRODUCTION ASSOCIATION SHOWS SIGNS OF RECOVERY

Tbilisi ZARAYA VOSTOKA in Russian 4 Aug 79 p 2

[Article by Cand Econ Sci A. Chachibaya, Sector Director, Scientific Research Institute of Economics and National Economic Planning, Georgian SSR Gosplan: "When the Paths are Defined"]

[Text] More than half a year has passed since the Tbilisi Machine Tool Building Production Association was taken over by a new management. By that time the machine tool builders had fallen seriously behind the schedule for the five-year plan, increasing their product debt to consumers to more than 5 million rubles. Filling such a large gap is not an easy task, and it requires time. And, naturally, half a year could not have produced a fundamental turning point in the collective's work. The association is still behind: Its commodity production fell short by more than 4 million rubles, consumers failed to received 190 planned machine tools, the assignment for producing spare parts for machine tools and consumer goods was not completed, and the machine tool builders failed to reach their planned growth in labor productivity. In a word, the plan has failed in relation to all basic indicators. As a result the association is now in a difficult financial position: As of 1 July 1979 the association was overdue in repayment of its loans to the USSR Gosbank by 1.6 million rubles.

Let us turn to the past to understand the reasons behind such an unfortunate outcome. One of the main factors responsible for this situation is absence of a long-range plan for economic and social development of the enterprise. No one took the trouble of writing one up in time. The former management lived only for today, giving no thought to the future of the production association. And yet such a plan should have been written to direct the enterprise at increasing its production and raising the labor activity of the collective.

In a word, a scientific approach to the problem was not taken; the management tried to achieve its growth by the seat of its pants, and it failed. And the growth target was in fact not an easy one to reach. The plan for 1976-1980 foresaw production growth totaling 15 million rubles--that is, 44.6 percent. It stands to reason that a dramatic increase in production volume could not

have been achieved without first implementing a number of organizational and technical measures, ones to which thought had not been given in the very beginning--reconstruction and expansion of shops and sections, augmentation of production capacities, provision of highly productive equipment, and product improvement. In the end, no effective steps were taken to prepare production with the goal of raising it to a higher level. On the other hand the All-Union Production Association for the Production of Heavy and Custom-Made Machine Tools of the USSR Ministry of Machine Tool and Tool Building Industry failed to provide any sort of effective assistance to the association. In particular the main administration even failed to finance those measures that had been foreseen by the plan.

Nevertheless the association's former management could have solved the production growth problem. Consider at least the approach of searching for and making maximum use of internal reserves. They did not take it. As an example they could have placed their reliance on the tested lever of raising the equipment shift use coefficient. It is presently 1.29 in the machine tool building association. This is unquestionably a low indicator. But here is something else that is interesting: Estimates show that increasing it to just 1.6-1.7 would have permitted the enterprise to complete its planned program. And yet the management was unable to achieve this increase owing to high personnel turnover and a shortage of manpower (800 persons) on one hand, and poor organization of work in the second shift on the other, leading to idleness of machinery and equipment.

Little has been done in the association to improve the working and personal conditions of the workers. Evidence of this can be found in the fact that not a single residential building has been built for the laborers since 1972.

To assess the situation objectively, we would also have to consider the difficulties with material-technical supply, which the enterprise has encountered and continues to encounter, and which significantly influence its work. We need not look far for examples. In June of this year 13 special machine tools and 21 lathes were not packed and delivered owing to an absence of lumber. Another case involves articles supplied by other enterprises: One of the switches mounted on machine tools produced by the association had formerly been supplied by the Moscow Low Voltage Apparatus Plant. Beginning with this year it was to be produced by the Kizlyar plant, but its production has still not been organized there. Now, figuratively speaking, the machine tool builders must satisfy themselves with cold rations.

These and other shortcomings in the association have deep roots. Their correction will require a year and a half or two. Thus the collective's present shortfall can be viewed as a natural phenomenon.

It is entirely understandable that the association's new management has had it hard. But a fact remains a fact: It has managed to orient itself in the

complex situation and take specific steps to solve the urgent problems. The collective shows the proper directions in its work--promoting growth in productive capacities, raising the equipment shift use coefficient, and improving labor and production organization.

New production buildings are now being built on a broad front at all enterprises of the association, and documents to support further reconstruction of the Tbilisi Grinding Tool Plant and expanding the Tsalka Machine Tool Unit Plant are being written. The work of raising the reliability and life of the machine tools produced is continuing, and new types of products are being developed.

One of the association's bottlenecks was the special machine tool assembly areas, which lacked the gear needed for initial drilling of foundation parts. This drilling contributes 30-40 percent to the total labor of the assembly operations. A separate drilling section is now being created apart from the assembly shop. This will raise labor productivity in the assembly phase by 20-30 percent. A decision has been made to create an experimental shop in the main plant's new building, presently under construction. New forms of products will be developed here. Other measures have also been planned and are presently being implemented, to include construction of housing and raising the effectiveness and quality of the work. It should be noted that the association's party organization is keeping close surveillance over fulfillment of these measures.

And nevertheless the measures the machine tool builders are presently implementing to fill the gap in planning indicators are clearly not enough today. An economic analysis would reveal a number of vulnerable places hindering the collective's planned and effective work.

The mechanization level of the association's principal production processes is 70 percent. This cannot satisfy the growing demands of production. The problems of mechanization and automation must be tackled head-on. This pertains especially to fitting, assembly, wiring, and freight handling operations. There is also a very important reserve in broad introduction of machine tools employing digital programmed control: This will make it possible not only to dramatically increase labor productivity but also improve the quality with which parts are worked.

It should be considered that more or less effective measures aimed at deepening specialization of production, improving the organizational structure of management, and centralizing the services were not implemented from the day the association was created. This is why the production and business ties existing within the association appear so complex today, and this is why correspondence is so difficult to manage and the efficiency of management is so low. This is why it is important for the new management to develop and introduce measures to improve management of the production association in the fastest possible time.

Nor should we forget about long-range development of machine tool building. In this aspect we need to thoroughly develop the scientific experimental and design subdivisions, and broaden and strengthen ties with scientific research institutes. We must apparently study and successively implement the proposals and recommendations that were developed by colleagues of the Georgian SSR Gosplan NIIEP [not further identified] on the basis of integrated sociological research conducted in the association.

To sum up, the management and the entire collective of the Tbilisi Machine Tool Building Production Association face a great deal of work. The principal paths for stabilizing the work rhythm of each production unit have been defined. Now it all depends on how successively and consistently the plans will be implemented. The experience of the recent past persuasively demonstrates to what failure to comply with this requirement, most important to all production, leads. But efficient work is not developed spontaneously--all efforts must be mobilized for this purpose. I think that the collective, which has great and good traditions, will be able to complete this task. [20-11004]

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1 Nov. 1979

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